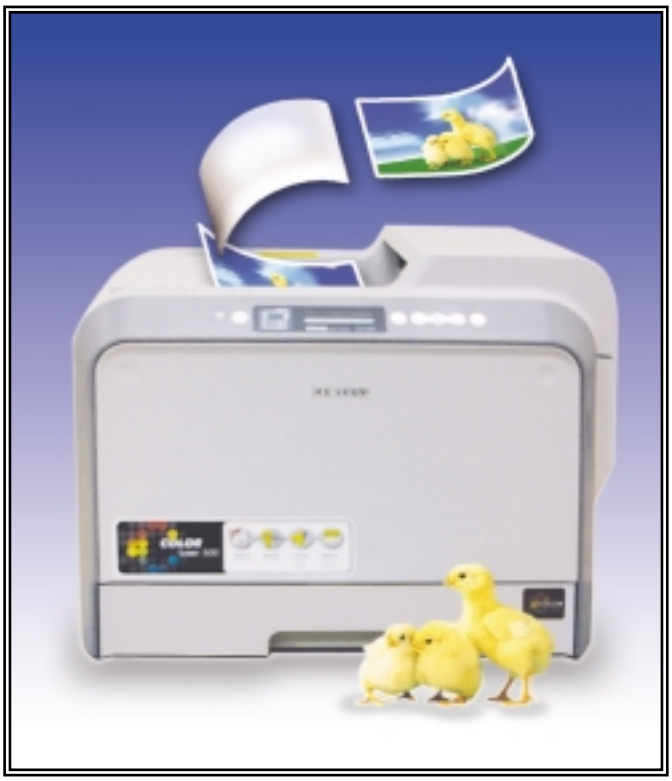
SAMSUNG COLOR LASER PRINTER

CLP-500 SERIES

CLP-500/500N

SERVICE *Manual*

SAMSUNG COLOR LASER PRINTER



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1. Precautions

In order to prevent accidents and to prevent damage to the equipment please read the precautions listed below carefully before servicing the printer and follow them closely.

1.1 Safety Warning

(1) Only to be serviced by appropriately qualified service engineers.
High voltages and lasers inside this product are dangerous. This printer should only be serviced by a suitably trained and qualified service engineer.

(2) Use only Samsung replacement parts
There are no user serviceable parts inside the printer. Do not make any unauthorized changes or additions to the printer, these could cause the printer to malfunction and create electric shock or fire haz-ards.

(3) Laser Safety Statement
The Printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR, chapter 1 Subchapter J for Class 1(1) laser products, and elsewhere, it is certified as a Class I laser product con-forming to the requirements of IEC 825. Class I laser products are not considered to be hazardous. The laser system and printer are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance, or prescribed service condition.

Warning >> Never operate or service the printer with the protective cover removed from Laser/Scanner assembly. The reflected beam, although invisible, can damage your eyes. When using this product, these basic safety pre-cautions should always be followed to reduce risk of fire, electric shock, and injury to persons.

CAUTION - INVISIBLE LASER RADIATION
WHEN THIS COVER OPEN.
DO NOT OPEN THIS COVER.

VORSICHT - UNSICHTBARE LASERSTRAHLUNG,
WENN ABDECKUNG GE FFNET.
NICHT DEM STRAHL AUSSETZEN.

ATTENTION - RAYONNEMENT LASER INVISIBLE EN CAS
D OUVERTURE. EXPOSITION DANGEREUSE
AU FAISCEAU.

ATTENZIONE - RADIAZIONE LASER INVISIBILE IN CASO DI
APERTURA. EVITARE L ESPOSIZIONE AL
FASCIO.

PRECAUCION - RADIACION LASER IVISIBLE CUANDO SE ABRE.
EVITAR EXPONERSE AL RAYO.

ADVARSEL. - USYNLIG LASERSTR LNING VED BNING, N R
SIKKERHEDSBRYDERE ER UDE AF FUNKTION.
UNDG UDSAETTELSE FOR STR LNING.

ADVARSEL. - USYNLIG LASERSTR LNING N R DEKSEL
PNES. STIRR IKKE INN I STR LEN.
UNNG EKSPONERING FOR STR LEN.

VARNING - OSYNLIG LASERSTR LNING N R DENNA DEL
R PPNAD OCH SP RREN R URKOPPLAD.
BETRAKTA EJ STR LEN. STR LEN R FARLIG.

VARO! - AVATTAESSA JA SUOJALUKITUS OHITETTAESSA
OLET ALTTIINA N KYM TT M LLE LASER-
S TEILYLLE L KATSO S TEESEEN.

注 意 - 严禁渴开此盖, 以免激光泄露灼伤

주 의 - 이 덮개를 열면 레이저광에 노출될 수 있으므로 주의하십시오.

1.2 Caution for safety

1.2.1 Toxic material

This product contains toxic materials that could cause illness if ingested.

(1) If the LCD control panel is damaged it is possible for the liquid inside to leak. This liquid is toxic. Contact with the skin should be avoided, wash any splashes from eyes or skin immediately and contact your doctor. If the liquid gets into the mouth or is swallowed see a doctor immediately.

(2) Please keep toner cartridges away from children. The toner powder contained in the toner cartridge may be harmful and if swallowed you should contact a doctor.

1.2.2 Electric Shock and Fire Safety Precautions

Failure to follow the following instructions could cause electric shock or potentially cause a fire.

(1) Use only the correct voltage, failure to do so could damage the printer and potentially cause a fire or an electric shock.

(2) Use only the power cable supplied with the printer. Use of an incorrectly specified cable could cause the cable to overheat and potentially cause a fire.

(3) Do not overload the power socket, this could lead to overheating of the cables inside the wall and could lead to a fire.

(4) Do not allow water or other liquids to spill into the printer, this can cause electric shock. Do not allow paper clips, pins or other foreign objects to fall into the printer these could cause a short circuit leading to an electric shock or fire hazard..

(5) Never touch the plugs on either end of the power cable with wet hands, this can cause electric shock. When servicing the printer remove the power plug from the wall socket.

(6) Use caution when inserting or removing the power connector. The power connector must be inserted completely otherwise a poor contact could cause overheating possibly leading to a fire. When removing the power connector grip it firmly and pull.

(7) Take care of the power cable. Do not allow it to become twisted, bent sharply round corners or other wise damaged. Do not place objects on top of the power cable. If the power cable is damaged it could overheat and cause a fire or exposed cables could cause an electric shock. Replace a damaged power cable immediately, do not reuse or repair the damaged cable. Some chemicals can attack the coating on the power cable, weakening the cover or exposing cables causing fire and shock risks.

(8) Ensure that the power sockets and plugs are not cracked or broken in any way. Any such defects should be repaired immediately. Take care not to cut or damage the power cable or plugs when moving the machine.

(9) Use caution during thunder or lightening storms. Samsung recommend that this machine be disconnected from the power source when such weather conditions are expected. Do not touch the machine or the power cord if it is still connected to the wall socket in these weather conditions.

(10) Avoid damp or dusty areas, install the printer in a clean well ventilated location. Do not position the machine near a humidifier. Damp and dust build up inside the machine can lead to overheating and cause a fire.

(11) Do not position the printer in direct sunlight. This will cause the temperature inside the printer to rise possibly leading to the printer failing to work properly and in extreme conditions could lead to a fire.

(12) Do not insert any metal objects into the machine through the ventilator fan or other part of the casing, it could make contact with a high voltage conductor inside the machine and cause an electric shock.

1.2.3 Handling Precautions

The following instructions are for your own personal safety, to avoid injury and so as not to damage the printer

(1) Ensure the printer is installed on a level surface, capable of supporting its weight. Failure to do so could cause the printer to tip or fall.
(2) The printer contains many rollers, gears and fans. Take great care to ensure that you do not catch your fingers, hair or clothing in any of these rotating devices.
(3) Do not place any small metal objects, containers of water, chemicals or other liquids close to the printer which if spilled could get into the machine and cause damage or a shock or fire hazard.
(4) Do not install the machine in areas with high dust or moisture levels, beside on open window or close to a humidifier or heater. Damage could be caused to the printer in such areas.
(5) Do not place candles, burning cigarettes, etc on the printer, These could cause a fire.

1.2.4 Assembly / Disassembly Precautions

Replace parts carefully, always use Samsung parts. Take care to note the exact location of parts and also cable routing before dismantling any part of the machine. Ensure all parts and cables are replaced correctly. Please carry out the following procedures before dismantling the printer or replacing any parts.

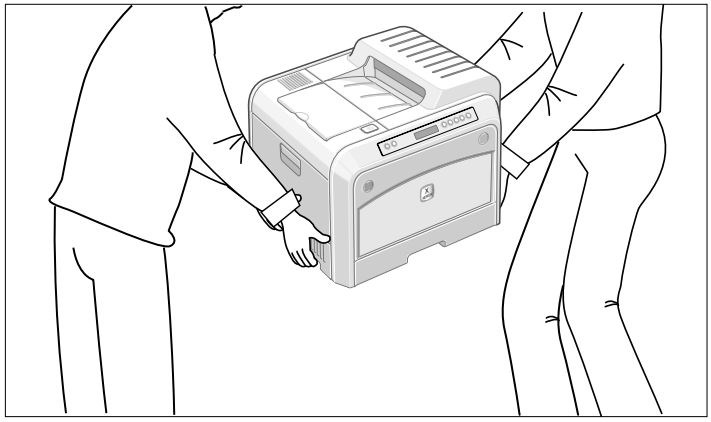
(1) Check the contents of the machine memory and make a note of any user settings. These will be erased if the mainboard or network card is replaced.
(2) Ensure that power is disconnected before servicing or replacing any electrical parts.
(3) Disconnect printer interface cables and power cables.
(4) Only use approved spare parts. Ensure that part number, product name, any voltage, current or temperature rating are correct.
(5) When removing or re-fitting any parts do not use excessive force, especially when fitting screws into plastic.
(6) Take care not to drop any small parts into the machine.
(7) Handling of the OPC Drum
- The OPC Drum Unit can be irreparably damaged if it is exposed to light.
  Take care not to expose the OPC drum either to direct sunlight or to fluorescent or incandescent room lighting. Exposure for as little as 5 mins can damage the surface's photoconductive properties and will result in print quality degradation. Take extra care when servicing the printer. Remove the OPC drum and store it in a black bag or other lightproof container. Take care when working with the covers (especially the top cover) open as light is admitted to the OPC area and can damage the OPC drum.
- Take care not to scratch the green surface of OPC Drum Unit.
  If the green surface of the Drum Cartridge is scratched or touched the print quality will be compromised.

1.2.5 Disregarding this warning may cause bodily injury

(1) Be careful with the high temperature part.
The fuser unit works at a high temperature. Use caution when working on the printer. Wait for the fuser to cool down before disassembly.

(2) Do not put finger or hair into the rotating parts.
When operating a printer, do not put hand or hair into the rotating parts (Paper feeding entrance, motor, fan, etc.). If do, you can get harm.

(3) When you move the printer.
This printer is 32kg including developing cartridge and cassette. If you wish to move it, it must be moved by two people. Do grab the handle at each side and hold the front. If one person tries to move it. it can cause a physical injury (back bom.)



(4) Do not install printer on an unstable place.
Do not install the printer on an unstable place. This can cause bodily harm, or damage the printer. It is 32kg, so if you wish to put it on a table, check the table bo be sure the tablet is strong enough to support the printet.

(5) Do not install the printer on a sloping or unstable surface. After installation, double check that the printer is stable.

1.3 ESD Precautions

Certain semiconductor devices can be easily damaged by static electricity. Such components are commonly called “Electrostatically Sensitive (ES) Devices”, or ESDs. Examples of typical ESDs are: integrated circuits, some field effect transistors, and semiconductor “chip” components.

The techniques outlined below should be followed to help reduce the incidence of component damage caused by static electricity.

Caution >>Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

1. Immediately before handling a semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, employ a commercially available wrist strap device, which should be removed for your personal safety reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESDs, place the assembly on a conductive surface, such as aluminum or copper foil, or conductive foam, to prevent electrostatic charge buildup in the vicinity of the assembly.
3. Use only a grounded tip soldering iron to solder or desolder ESDs.
4. Use only an “anti-static” solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESDs.
5. Do not use Freon-propelled chemicals. When sprayed, these can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective packaging until immediately before installing it. Most replacement ESDs are packaged with all leads shorted together by conductive foam, aluminum foil, or a comparable conductive material.
7. Immediately before removing the protective shorting material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
8. Maintain continuous electrical contact between the ESD and the assembly into which it will be installed, until completely plugged or soldered into the circuit.
9. Minimize bodily motions when handling unpackaged replacement ESDs. Normal motions, such as the brushing together of clothing fabric and lifting one’s foot from a carpeted floor, can generate static electricity sufficient to damage an ESD.

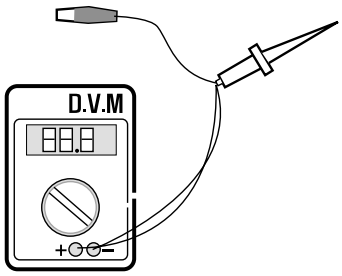
2. Reference Information

This chapter contains the tools list, list of abbreviations used in this manual, and a guide to the location space required when installing the printer. A definition of tests pages and Wireless Network information definition is also included.

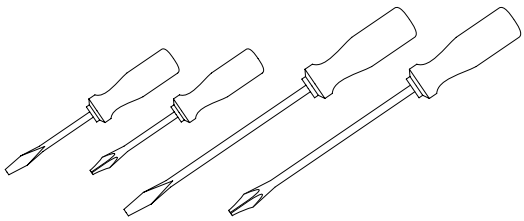
2.1 Tool for Troubleshooting

The following tools are recommended safe and easy troubleshooting as described in this service manual.

- **DVM(Digital Volt Meter)**
  Standard : Indicates more than 3 digits.



- **Driver**
  Standard : "-" type, "+" type (M3 long, M3 short, M2 long, M2 short).

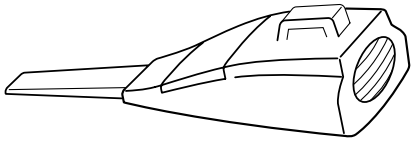


- **Tweezers**
  Standard : For general home use, small type.

- **Cotton Swab**
  Standard : For general home use, for medical service.

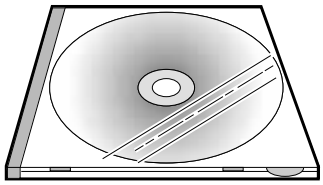
- **Cleaning Equipments**
  Standard : An IPA(Isopropyl Alcohol)dry wipe tissue or a gentle neutral detergent and lint-free cloth.

- **Vacuum Cleaner**



- **Brush**

- **Software (Driver) installation CD ROM**



2.2 Acronyms and Abbreviations

The table below explains the abbreviations and acronyms used in this service manual. Where abbreviations or acronyms are used in the text please refer to this table.

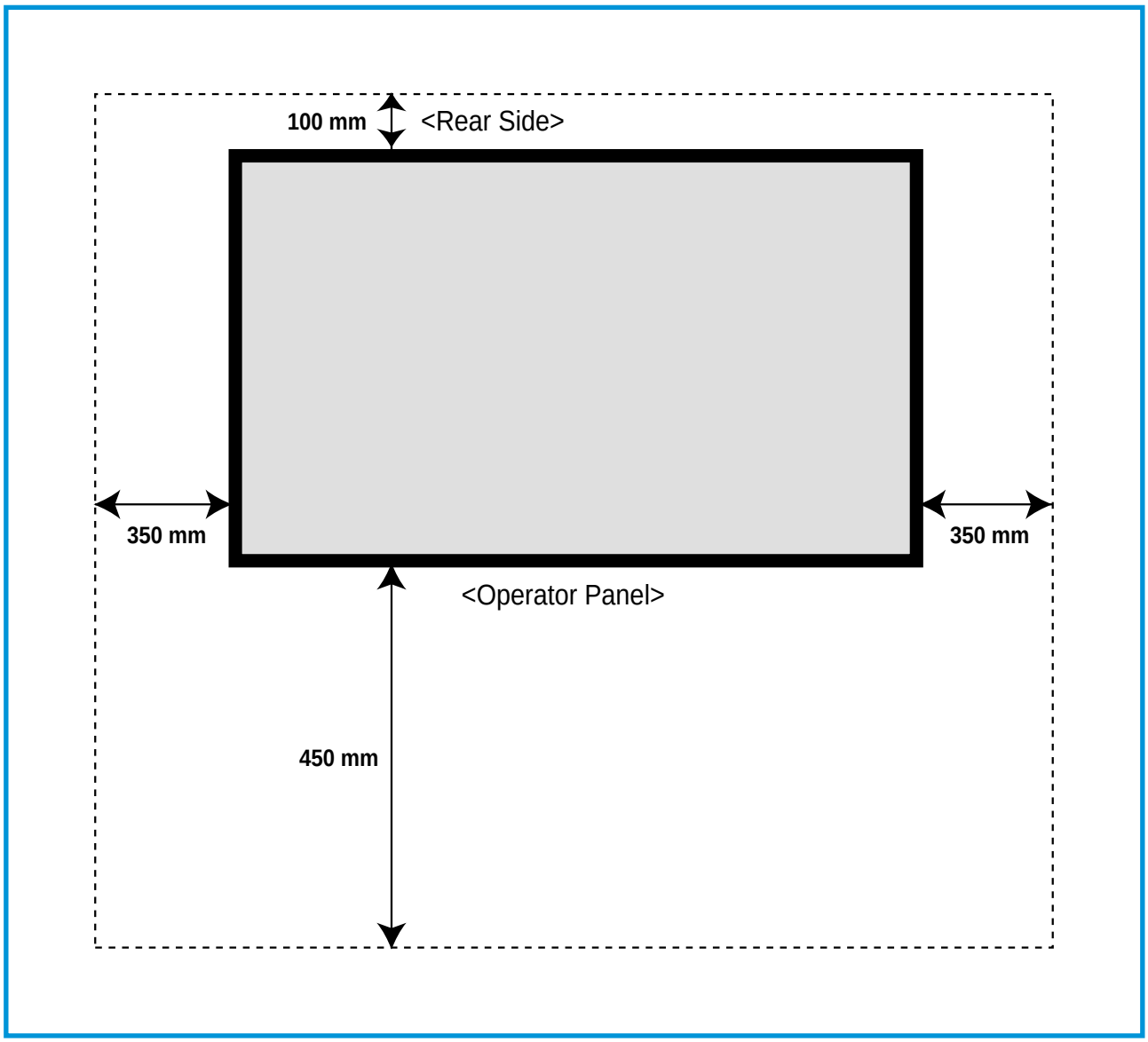
ADC	Analog-to-Digital-Conversion
AP	Access Point
AC	Alternating Current
ASIC Circuit	Application Specific Integrated
ASSY	Assembly
BIOS	Basic Input Output System
BLDC Motor	Brushless DC Motor
CMOS	Complementary Metal Oxide Semiconductor
CMYK	Cyan, Magenta, Yellow, Black
CN	Connector
CON	Connector
CPU	Central Processing Unit
CTD Sensor	Color Toner Density Sensor
dB	Decibel
dBA	A-Weighted decibel
dBm	Decibel milliwatt
DC	Direct Current
DCU	Diagnostic Control Unit
DIMM	Dual In-line Memory Module
DPI	Dot Per Inch
DRAM	Dynamic Random Access Memory
DVM	Digital Voltmeter
ECP	Enhanced Capability Port
ECU	Engine Control Unit
EEPROM	Electronically Erasable Programmable Read Only Memory
EMI	Electro Magnetic Interference
EP	Electro photographic
EPP	Enhanced Parallel Port
F/W	Firmware
FCF/FCT	First Cassette Feeder/First Cassette Tray
FISO	Front-In, Side-Out
FPOT	First Print out Time
GDI	Windows Graphic Device Interface
GIF	Graphic Interchange Format
GND	Ground
HBP	Host Based Printing
HDD	Hard Disk Drive
HTML	Hyper Text Transfer Protocol
HV	High Voltage
HVPS	High Voltage Power Supply
I/F	Interface
I/O	Input and Output
lb	Pound(s)
IC	Integrated Circuit
ICC	International Color Consortium
IDE	Intelligent Drive Electronics or Integrated Drive Electronics
IEEE	Institute of Electrical and Electronics Engineers. Inc
IOT	Image Output Terminal (Color printer, Copier)
IPA	Isopropy Alcohol
IPC	Inter Process CommunicationEPP Enhanced parallel Port
IPM	Images Per Minute
ITB	Image Transfer Belt
LAN	local area network

LBP	Laser Beam Printer
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LSU	Laser Scanning Unit
MB	Megabyte
MHz	Megahertz
MPBF	Mean Prints Between Failure
MPF/MPT	Multi Purpose Feeder/Multi Purpose Tray
NIC	Network Interface Card
NPC	Network Printer Card
NVRAM	Nonvolatile Random Access Memory
OPC	Organic Photo Conductor
PBA	Printed Board Assembly
PCL	Printer Command Language , Printer Control Language
PCI	Peripheral Component Interconnect by Intel 1992/6/22, is a local bus standard developed by Intel and introduced in April, 1993 : A60, B60 Pins
PDF	Portable Document Format
PDL	Page Description Language
Ping	Packet internet or Inter-Network Groper
PPD	Postscript Printer Discription
PPM	Page Per Minute
PS	Post Script
PTL	Pre-Transfer Lamp
PWM	Pulse Width Moduration
Q'ty	Quantity
RAM	Random Access Memory
ROM	Read Only Memory
SCF/SCT	Second Cassette Feeder/Second Cassette Tray
SMPS	Switching Mode Power Supply
SPGP	Samsung Printer Graphic Processor
SPL	Samsung Printer Language
Spool	Simultaneous Peripheral Operation Online
SURF	Surface Rapid Fusing
SW	Switch
sync	Synchronous or Synchronization
T1	ITB
T2	Transfer Roller
TRC	Toner Reproduction Curve
PnP	Universal Plug and Play
URL	Uniform Resource Locator
USB	Universal Serial Bus
VCCI	Voluntary Control Council for Interference Information Technology Equipment
WECA Alliance	Wireless Ethernet Compatibility
Wi-Fi	Wireless Fidelity

2.3 Select a location for the printer

- Leave enough room to open the printer trays, covers, and allow for proper ventilation. (see diagram below)

- Provide the proper environment :
  - A firm, level surface
  - Away from the direct airflow of air conditioners, heaters, or ventilators
  - Free of extreme fluctuations of temperature, sunlight, or humidity
  - Clean, dry, and free of dust

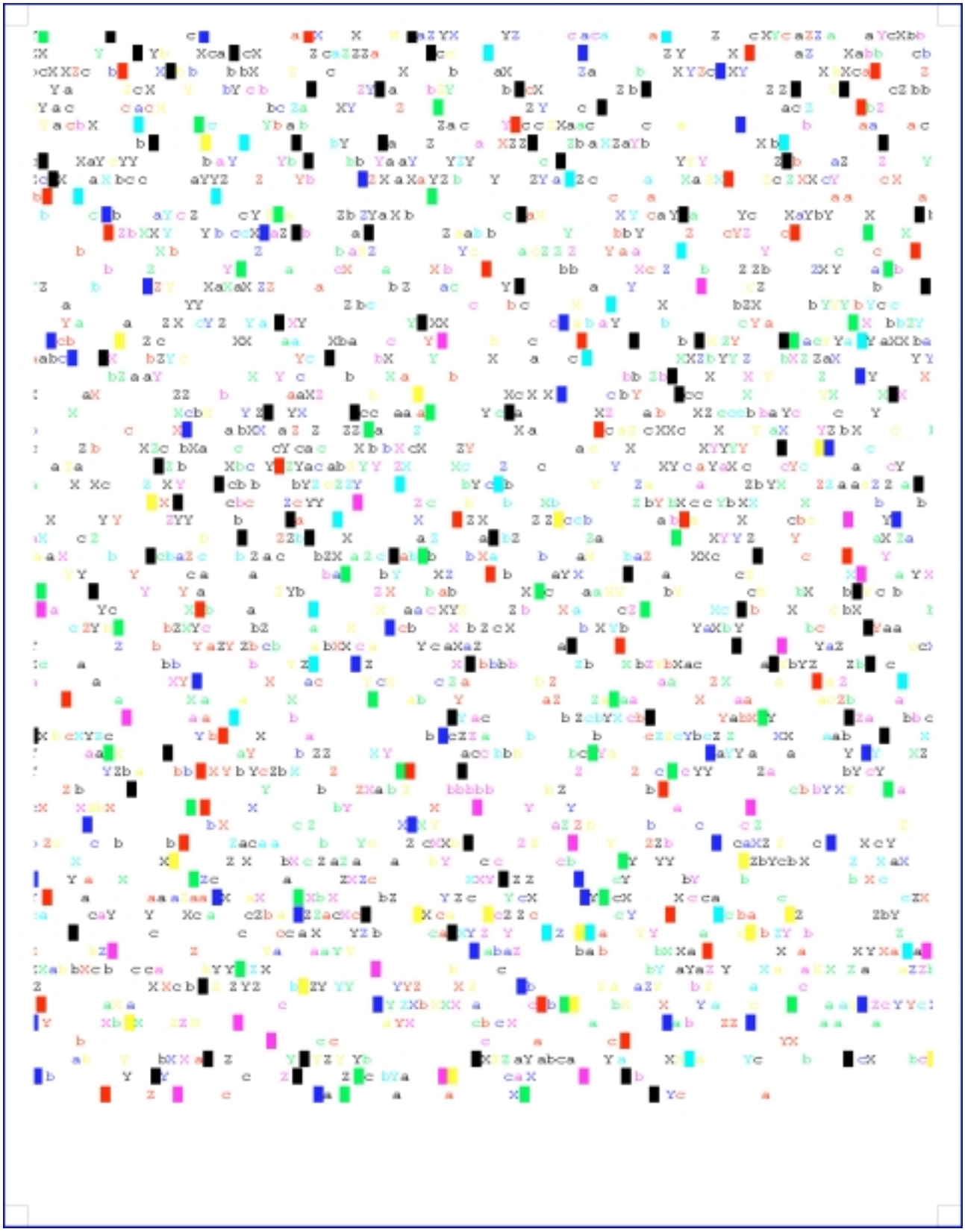


2.4 Sample Tests Patterns

The sample patterns shown below are the standard test patterns used in the factory.
The life of the toner cartridge, developer cartridge and printing speed are measured with the pattern shown below (5%). The 5% and 2% samples are reproduced reduced to 70% of the actual A4 size.

2.4.1 A4 5% Pattern

2.4.2 A4 2% Pattern

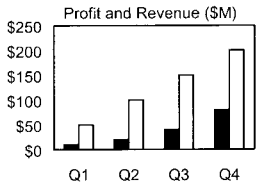


2.4.3 A4 IDC 5% Pattern

This test page is reproduced at 70% of the normal A4 size

INTEROFFICE MEMORANDUM

TO: Cathy Scott
FROM: Lane Wolters
SUBJECT: The Typical Printed Page
DATE: 07/14/09



What does the typical laser printer document look like? Well, across the diverse business community it would be impossible to capture all aspects of printing style within a single page document. However, if attention is focused on the majority of printing volume, text and simple business graphics would stand out as the most prevalent output from laser printers. This sample memo represents a reasonable example of the typical business document. This memo covers approximately 5% of a letter or A4-sized piece of paper. This number (5%) has historically been called the "average" page coverage by laser printer manufacturers. It may seem to the naked eye that there is much more than 5%, but in fact, alphanumeric characters rely on a large portion of white space for their composition.

Mileage Chart

City	London	Los Angeles	New York	Tokyo
London	--	5456	3453	5975
Los Angeles	5456	--	2468	5451
New York	3453	2468	--	6736
Tokyo	5975	5451	6736	--

There are many factors that can influence the actual page coverage of a document as well as the page-yield of a toner cartridge. Testing parameters such as font size and style, internal printer settings, print environment, paper stock, sample size, job length and criteria for determining "end of life", can all influence how long a toner cartridge will last. The best competitive analysis of printer page yield should occur under similar conditions using industry standards for the variables listed above.

1 of 1

2.6 Wireless LAN

• This product can be used with a wireless LAN, (this is an option.)
- The wireless LAN function uses radio technology, instead of using LAN cable, to connect to an access point for printing.
- For a wireless LAN connection in Infrastructure mode an AP is needed, (purchased separately)
- For a wireless LAN connection in Ad-Hoc mode an appropriate Wireless I/F card is required fitted to a computer, (purchased separately)
- It is possible to use a wireless LAN connection with wired LAN.
- If an AP is installed in an office or at home, the wireless LAN function can be simply configured and used.

• Types of desk top PC (or Lap top) that uses the wireless LAN.

Division	Basic type	Recommend type
CPU	Over PENTIUM 233M	PENTIUM 300MHz
MEMORY	Over 64MB	Over 128MB
VIDEO CARD	Over 800X600	Over 1024X768
OS	Over WINDOWS 98	Over WINDOWS ME
INTERFACE CARD	A product has a certificated mark of Wi-Fi™	

• About the certificated mark of Wi-Fi™

- Wi-Fi™ is a registered trademark of the WECA (Wireless Ethernet Compatibility Alliance). Over 50 wireless LAN companies are member of this organisation. Most of the main wireless networking companies are attending including such companies as Lucent Technologies, Cisco, Intel/Symbol, 3Com, Enterasys (Cabletron), Compaq, IBM, Nokia, Dell, Philips, Samsung Electronics, Sony, Intersil, etc.. This mark certifies mutual compatibility amongst the product of these companies. Wi-Fi™ (IEEE 802.1) is certified as a standard of the wireless LAN market.

3. Specifications

Specifications are correct at the time of printing. Product specifications are subject to change without notice. See below for product specifications.

3.1 General Specifications

Items	Descriptions		
Print Method	Non-impact Electro-photography		
Developing system	Non-Magnetic, Mono-Component Developing System		
Print Speed	Mono	20 PPM (A4 size), 21 PPM (Letter size)	
	Color	5 PPM(A4 size), 5 PPM (Letter size)	
Resolution	600 X 600 DPI, 1200 DPI Class with SRT on Windows Operating Systems only		
Source of Light	Laser diode (LSU : Laser Scanning Unit)		
Warm-Up Time	Less than 2 minutes		
First Print Time	Mono	Less than 15 seconds (Ready to 1st page out)	
	Color	Less than 24 seconds (Ready to 1st page out)	
Feed Method	Cassette , MPT(Multi Purpose Tray), SCT(Second Cassette Tray)		
Media Size	76 X 128mm (3 x 5”) to 216 X 356mm (8.5 X 14”)		
Media Thickness	Cassette : 16 ~24 lb , MPT : 16 ~ 43 lb		
Dimension (W X D X H)	510 X 470 X 405 mm		
Weight	Net	25.5 Kg	56.2Lbs
	Gross	32.0 Kg	70.5Lbs
Acoustic Noise	Stand by	Less than 40 dB	
	Printing	Less than 48 dB(Color)	
Power save mode	Available		
Toner save mode	Disable		
Machine Life	Mono : 300,000 pages, Color : 75,000 pages		Duty Cycle XXX pages per mo.

3.2 Controller Specification

Items	Descriptions
Processor (CPU)	Samsung SPGPm(CLOCK SPEED 120Mhz)
Memory	FLASH ROM(PROGRAM) : 2MB flash
	* RAM : 64MB (Expandable to 192MB) : With Option
	Option DIMM module : 64,128MB (SDRAM)
	100Pin SDRAM DIMM (Samsung Printer Only)
	EEPROM(NVRAM) : 512byte
Emulation	SPL-Color
Operating System	Win 95/98/ME/NT/2000/XP , Mac (Over Mac OS 8.6), Linux
Interface	Parallel : IEEE 1284 Bidirectional Parallel
	- Modes supported : Compatible,Nibble,Byte,ECP USB(without HUB mode)
	- USB 2.0 compliant -12/480 Mbps 1 port Network Interface
	- 10/100 Base TX 10/100 Base TX + 802.11b Wireless LAN
Interface switching	Automatic
Interface time-out	5min (Max.)
Font	Windows font
Color Management	ICC ICM V3.4

** Memory Slots : Standard Capacity is 64MB*
Option Capacity is 192MB(Max)
(100Pin 1 slot, 64MB/128MB)

3.3 Electrical Specification

Items	Descriptions		Remarks
Input Voltage	Nominal input voltage	200-240 VAC / 100~127VAC	
	Input voltage range	180-264 VAC/ 90~132VAC	
	Nominal frequency	50/60 MHz	
	Frequency tolerance	+3Hz	
Power Consumption	Printing :450W less ((with SCF)		
	Power Save : 35W less		

3.4 Environmental Range

Items	Operating		Storage
Temperature	15~32.5 ˚C(50-90 ˚F)	-20~40 ˚C (-4~104 ˚F)	
Humidity	20~80%RH	10~80%RH	

3.5 Consumable & Maintenance Items

Items	Descriptions		Remarks
Periodic Replacing Parts	Toner Cartridge(Black)	initial(2,000 pages@5% coverage)	User replace
		replacement(7,000 pages@5% coverage)	
	Toner Cartridge(Cyan)	initial(1,500 pages@5% coverage)	User replace
		replacement(5,000 pages@5% coverage)	
	Toner Cartridge(Magenta)	initial(1,500 pages@5% coverage)	User replace
		replacement(5,000 pages@5% coverage)	
	Toner Cartridge(Yellow)	initial(1,500 pages@5% coverage)	User replace
		replacement(5,000 pages@5% coverage)	
	OPC Unit	mono : 50,000 pages	User replace
		color : 12,500 pages	
	ITB Unit(T1 Roller)	mono : 50,000 pages	User replace
		color : 12,500 pages	
	Waste Toner Tank	3,000 images	User replace
	Fuser Unit	simplex : 100,000 page	Engineer
		duplex : 50,000 page	
	Transfer Roller(T2 Roller)	simplex : 50,000 page	Engineer
		duplex : 25,000 page	
Option	SCT (Second Cassette Tray)	- Paper capacity : 500sheets	
		- Paper weight : 60 ~ 90 g/m^2 / 16 ~ 24 lbs	
	Network Printing	- Ethernet 10/100baseTX + Wireless	
		- Protocols : TCP/IP, SPX/IPX, Ethertalk, SNMP, HTTP 1.1, DLC/LLC	
		- 8MB RAM Buffer for faster graphics performance	
		- 4MB Flash Memory for upgrade	
	802.11b Wireless LAN	- IEEE802.3b support	
		- speed : 11, 5.5, 2 ,1Mbps	
		- WEP : 64bit, 128bit	
		- Operating range : 30m(Indoors) , 100m(Outdoors)	
	SDRAM DIMM	- 64,128MB 100Pin SDRAM DIMM(Use Samsung Part Only)	

3.6 Paper handling Specifications

3.6.1 input Paper Size

Paper	Paper size	1st Cassette	2nd Cassette	MP tray	Duplex
A4	210 X 297 mm	O	O	O	O
Letter	216 X 279 (8.5 X 11")	O	O	O	O
Folio (Legal13")	216 X 330 (8.5 X 13")			O	O
Legal (Legal14")	216 X 356 (8.5 X14")			O	O
Executive	184 X 267 (7.25 X10.5")			O	
Statement	140 X 216(5.5 x8.5")			O	
ISO B5	176 X 250			O	
JIS B5	182 X257			O	
A5	148.5 X 210			O	
A6	105 X148.5			O	
Com-10 Envelope	105 X 241 (4.15 X 9.5")			O	
Monarch Envelope	98 X191 (3.87 X 7.5")			O	
DL Envelope	110 X 220(4.33 X 8.66")			O	
C5 Envelope	162 X 229 (6.38 X 9.01")			O	
C6 Envelope	114 X 162 (4.49 X 6.38")			O	
Transparency (OHP)	A4 or Letter			O	
Label paper	A4 or Letter			O	

O : Enable

3.6.2 Input Capacity

Items	Descriptions		Remarks
Cassette(FCT)	250 sheets		
MP tray	Paper	100 sheets	
	Transparencies	30 sheets	
	Envelopes	10 sheets	
	Labels	10 sheets	
Option Cassette(SCT)	500 sheets		

3.6.3 Output Capacity

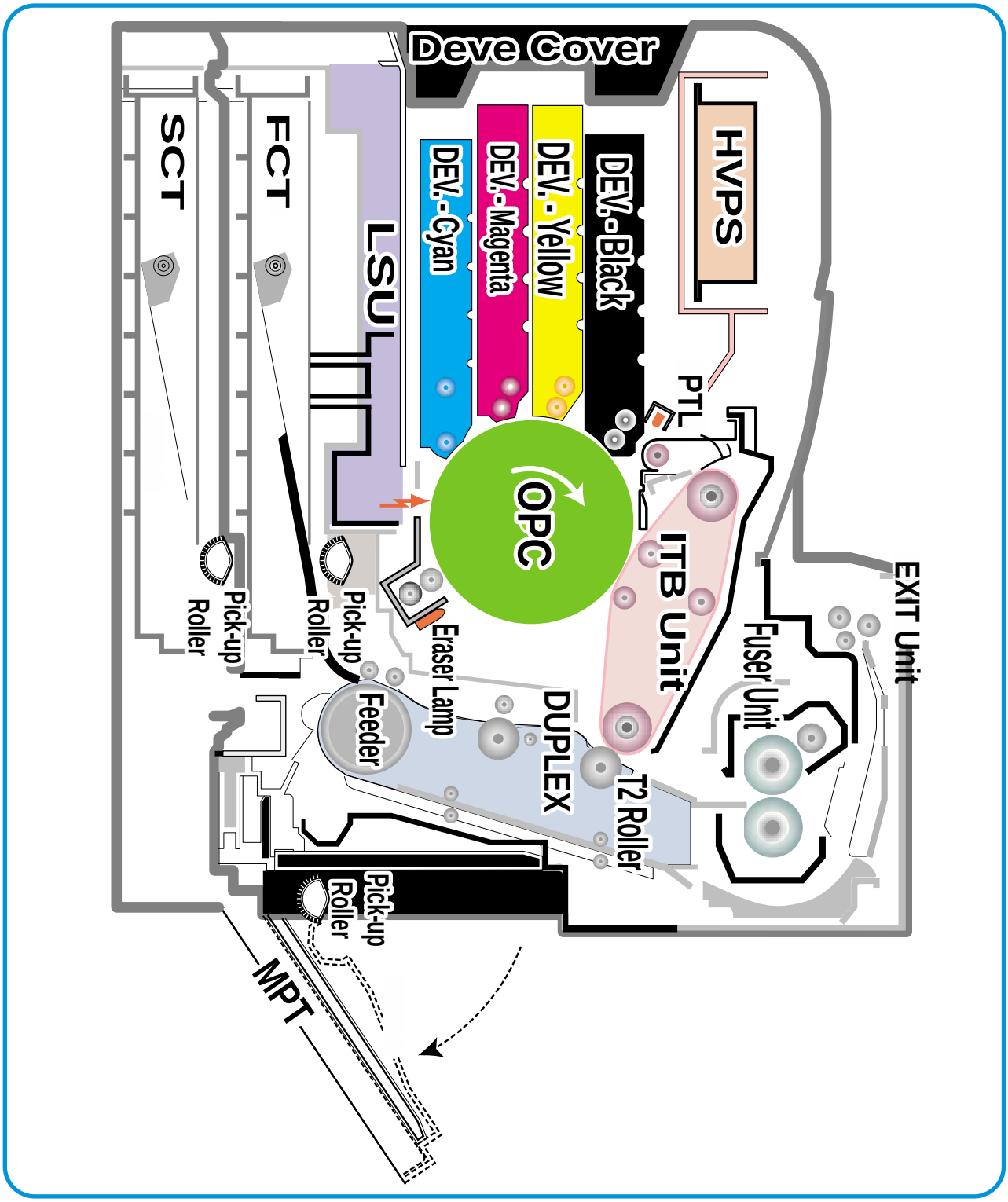
Items	Descriptions	Remarks
Face Down	250 sheets	

4. Summary of Product

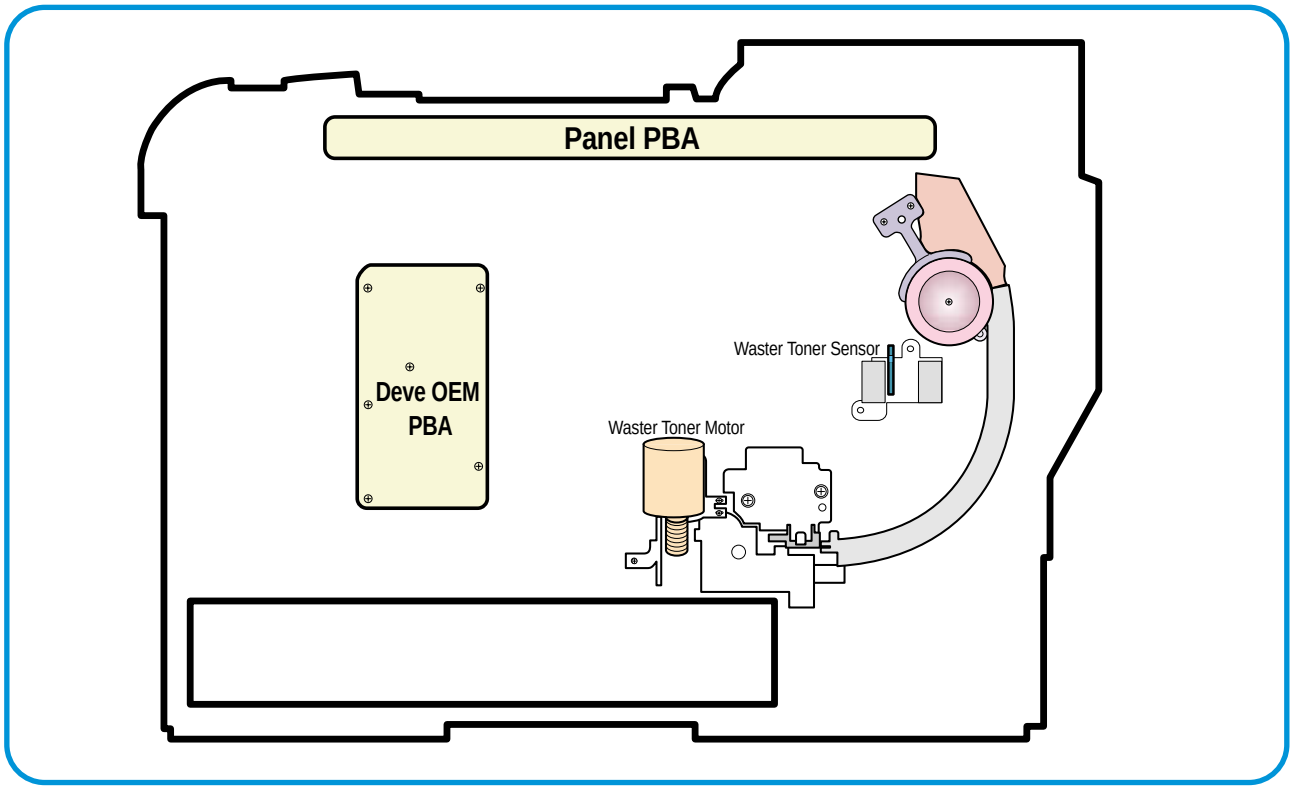
This chapter describes the functions and operating principals of the main components.

4.1 System Structure

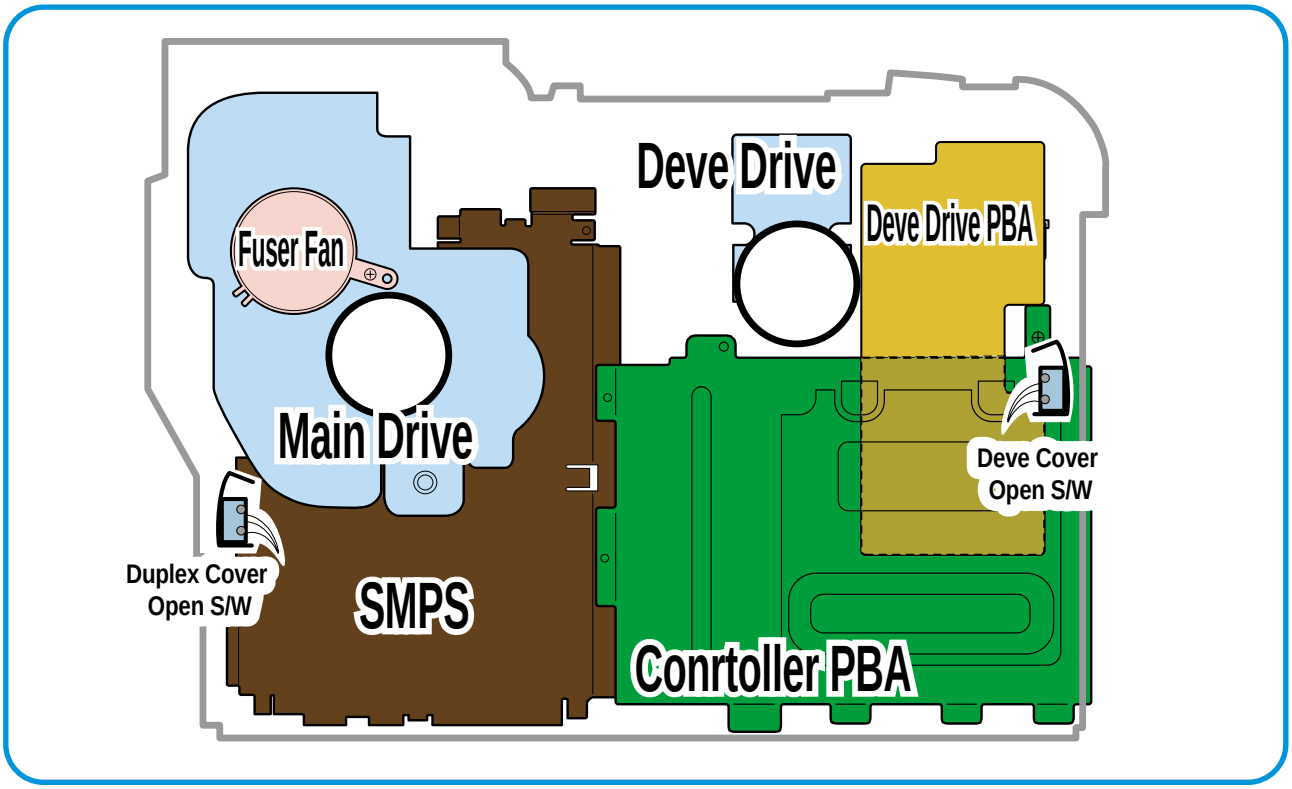
4.1.1 Main Parts of System



>> Front View



>> Rear View



1) OPC Unit

Images are created on the OPC unit using an electro-photographic process. The unit consists of:-
* OPC Drum
* Waste Toner Ass'y used to collect waste toner remaining on the OPC drum,
* Charge Roller Assy
* Etc.

2) ITB Unit

ITB stands for Image Transfer Belt. An image developed on the OPC Drum is transferred first to the ITB. This is called the T1 Transfer (Primary Image Transfer).
Images are built up in layers on the ITB.
First the Yellow (Y) colour image is created on the OPC and transferred to the ITB
Next the Magenta (M) colour image is created on the OPC and transferred to the ITB
Followed by the Cyan (C) and Black (K) images.

3) Transfer Roller

Once the complete, full colour, image, has been built up on the ITB the Transfer Roller is used to transfer the image onto paper. This is called the T2 Transfer (Secondary Image Transfer)

4) FCT (First Cassette Tray)

It stores and automatically feeds print paper.

Pick-up Roller picks up paper, controls drive, feeds paper, removes static electricity, and so on.

> Spec.

* Paper arrange way : Side Registration
* Paper Direction : FISO (Front-in, Side-Out)
* Cassette Type : A4, Ltr
* Paper Discharge : Separation Claw
* Capacity : 250 Sheets (Standard paper 75mg/m? 20lb)
* Paper Size : A4, Letter
* Paper Weight (average) : 60~90g/m^2 (16~24lbs)
* Paper Type : General Printing Paper
* Additional Function : Paper Empty Sensor

5) SCT (Second Cassette Tray)

This additionally stores and automatically feeds printing paper. Its function is the same as the FCT (First Cassette Tray)

> Spec.

* Paper arrangement : Side Registration
* Paper Direction : FISO (Front-in, Side-Out)
* Cassette Type : A4, Ltr
* Paper Discharge : Separation Claw
* Capacity : 500 Sheets (Standard paper 75mg/m^2 20lb)
* Paper Size : A4, Letter
* Paper Weight (average) : 60~90g/m^2 (16~24lbs)
* Paper Type : General Printing Paper
* Additional Function : Paper Empty Sensor

6) MPT (Multi Purpose Tray)

The Multi-Purpose Tray not only feeds general printing paper but is also used for many other kinds of paper such as those paper sizes not supported by the cassette, envelopes, OHP, etc.

> Spec.

* Capacity : Cut Sheet : 100 Sheets (Standard paper 75mg/m^2 20lb)
* OHP : 300 Sheets
* Envelope & Label & Card Stock : 10 Sheets
* Paper Arrangement : Side Registration
* Power : Main Motor (BLDC)
* Driving Management : Solenoid
* Paper Discharge : Friction Pad Method
* Paper Size : Legal, Folio, A4, Letter, Executive, JIS B5, A5, A6
* Paper Weight (Average) : 60~163g/m^2
* Paper Type : General, Label, Post Card, Transparency, Envelope, Card Stock (Tracing Paper is not served)
* Additional Function : Paper Empty Sensor

7) Feeder

* Paper Arrangement : Side Registration.
* Power : Main Motor (BLDC)
* Paper Management : Solenoid

8) Duplex Unit

The Duplex Unit is used to reverse feed paper when printing on the second side (known as Double sided or Duplex printing). The Duplex Unit is not an optional extra, it is built-in at manufacturing time and is integral with the Transfer Roller.

> Spec.

* Power : Main Motor (BLDC)
* Paper Reverse Function: After the front side of the original document is printed, it transfers the printing paper to the duplex unit for printing the reverse side of original document which is reverse fed by the exit roller.

9) Exit Unit

The Exit Unit guides paper that is just about to leave the print engine. Printed-paper is discharged by Exit Roller and Kicker into the Output Tray.

> Spec.

* Capacity : 250 sheets (Standard A4, 75g/m2)
* Paper Direction : Face Down
* Exit Drive Roller : It is driven by Main Motor (BLDC), and it rotates clockwise for normal feed and antic-clockwise when reverse feeding for duplex printing.
* Bin Full Sensor : There is no Bin Full sensor fitted on this model.

10) Toner Cartridge

There are four toner cartridges, each containing a different colour ink : C (Cyan), M (Magenta), Y (Yellow) , and K (Black).
Each one of these toner cartridge is independent and can be changed independently.

11) Fuser Unit

This unit consists of 2 Heat Lamps, 2 Heat Rollers, 2 Thermostats and a Thermister. It melts and fuses the toner, transferred by the transfer roller onto the paper, by applying pressure and high temperature to complete printing job.

12) LSU

This is a core part of LBP. It forms a latent image on the surface of OPC drum using a static charge.

* Resolution: Real 600 dpi

13) Main Drive Unit

This motor drives, by way of a gearbox, the OPC unit, ITB unit, feeder unit, fuser unit, exit unit and duplex unit.

> Spec.

* Power : 40W Max (24V)
* Drives : OPC unit, ITB unit, Fuser, Feeder, Duplex unit, Exit unit

14) DEVE Drive Unit

This motor drives, by way of a gearbox, the toner cartridges and ITB cleaning cam.

> Spec.

* Power : 40W Max (24V)
* Drives : DEV (4 Color)/ITB Cleaning)

15) SMPS (Switching Mode Power Supply)

This power supply uses the AC supply voltage to generate the DC voltages used by the system. The SMPS has 3 output channels (+3.3V, +5V, +24V).
The AC Heater Control Unit that supplies power to the fuser is also located on the SMPS.

16) HVPS (High Voltage Power Supply)

The HVPS creates the high voltages (Charger, Supply, T1, T2, Developer) used for the electro photographic process. The high voltage is created from the 24V line from the SMPS. High Voltage output is supplied to the toner cartridge, OPC drum unit, ITB unit, and Transfer roller.

17) Main Controller PBA

The Main controller PBA is very important as it is the heart of printer. It has several major function blocks.

* CPU Block: This manages the printing order from the host, creates bitmap data for the engine to print and controls various devices that are needed to operate the printer.
*Engine Control Block: This manages images and controls various kinds of I/O
* Memory Block : The operating system uses this to store video data and printing orders given by host.
* ROM Block : The printer OS and PDL Interpreter are stored here.
* In addition there are USB 2.0 Block, IEEE 1284 Block, Option Block, OPE Panel, etc.

18) DEVE Drive PBA

Each toner cartridge requires the Supply HV only when that colour image is being processed. This unit takes its HV source from the HVPS and using 4 solenoids selects which cartridge is to receive the Supply voltage. This section also contains the DEVE motor, DEVE clutch, and DEVE solenoid drives. These are activated in sequence as required by the printing process.

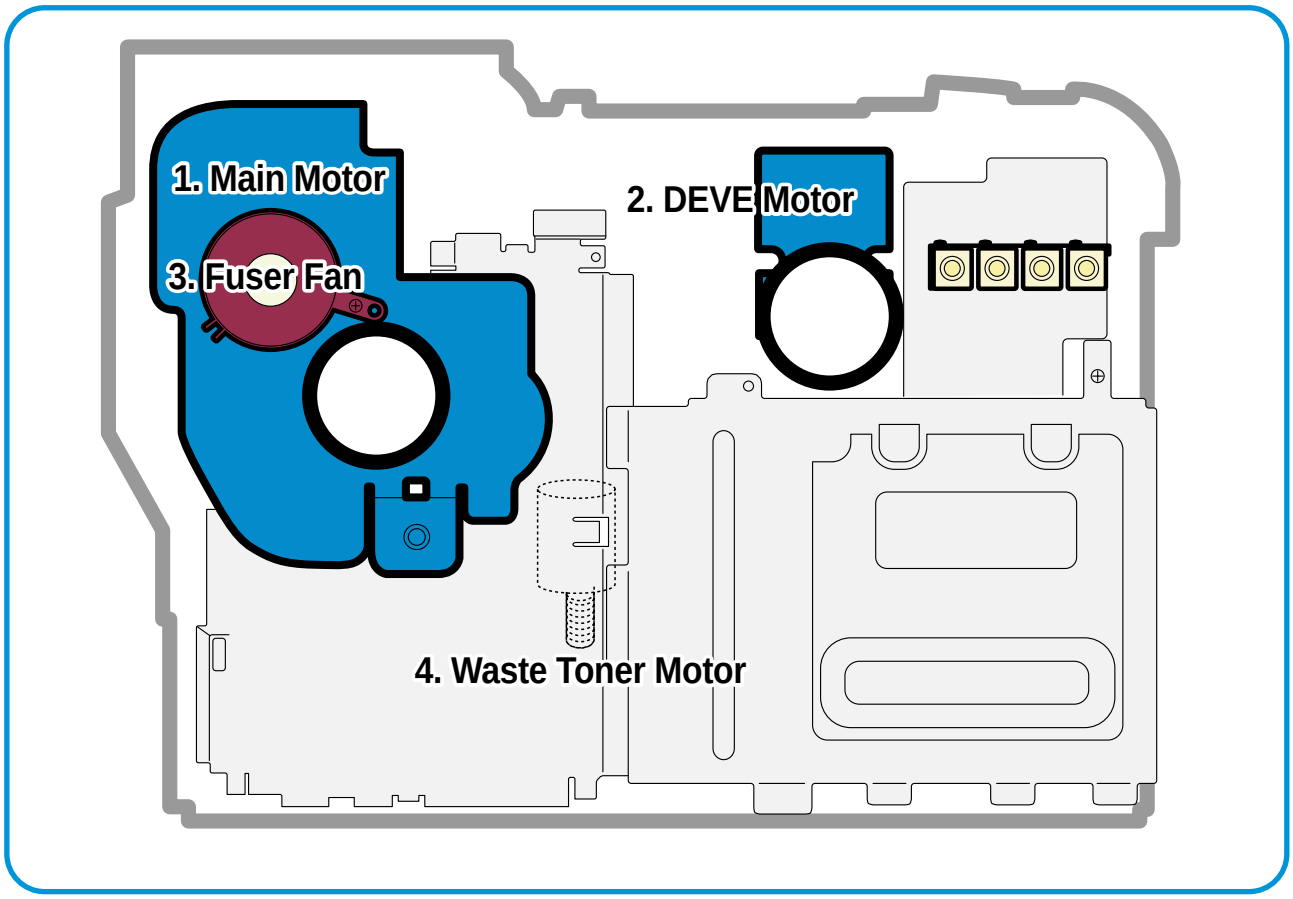
19) DEVE OEM PBA

This detects new or used toner cartridges and also checks that cartridges are approved parts. If a toner cartridge is not suitable for the machine an error message is displayed.

20) Waste Toner Ass'y

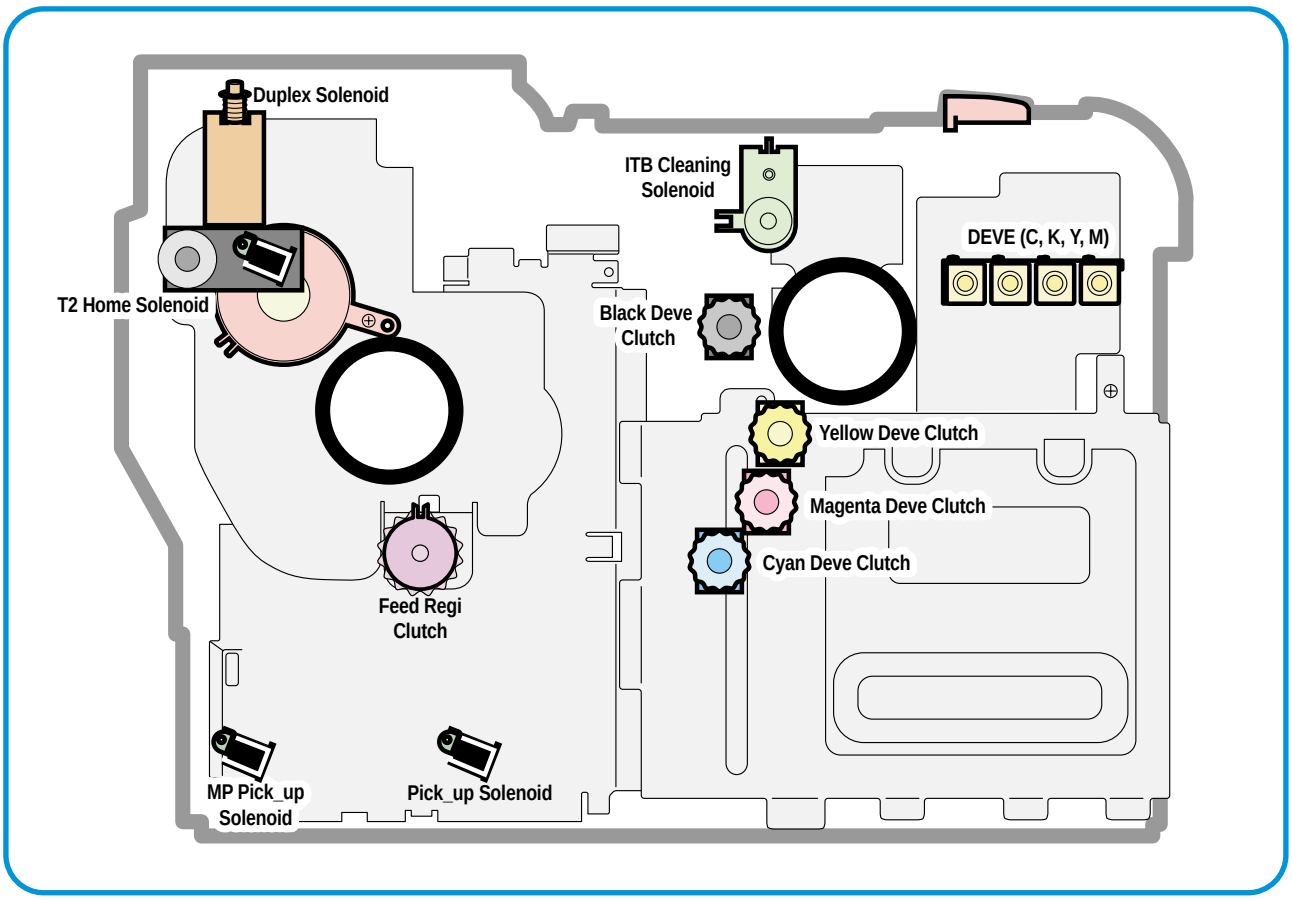
A cleaner blade on the OPC unit cleans waste toner from the OPC drum after every image is transferred to the ITB. Once the complete image is transferred from the ITB onto paper the ITB Cleaning Solenoid activates and a cleaning blade removes waste toner from the ITB. Waste toner is transferred to the waste toner tank.
When the error message "Waste Toner Tank Full/ Not Install" is displayed on the LCD Panel replace the Waste Toner Tank immediately. Using the printer without a Waste Toner Tank or with a full tank may damage the printer.

4.1.2 Motor & Fan Layout



NO.	Name	Description
1	Main Motor	Drives the OPC unit, ITB unit, feeder unit, fuser unit, exit unit and duplex unit.
2.	DEVE Motor	Drives C, M, Y and K toner cartridges and ITB cleaning cam.
3.	Fuser Fan	Forces cold air into the printer and takes out heat from the fuser.
4.	Waste Toner Motor	Transfers collected waste toner from the OPC drum and ITB to the waste toner tank. (Refer to front view picture on 4-2 page)

4.1.3 Clutch & Solenoid Layout



>>Solenoid

NO.	Name	Description
1.	C DEVE solenoid	Controls the High Voltage supply to the cyan cartridge.
2.	K DEVE solenoid	Controls the High Voltage supply to the black cartridge.
3.	Y DEVE solenoid	Controls the High Voltage supply to the yellow cartridge..
4.	M DEVE solenoid	Controls the High Voltage supply to the magenta cartridge.
5.	Pick-up solenoid	Controls the pick-up roller drive.
6.	MP Pick-up solenoid	Controls the MP pick-up roller drive.
7.	Duplex solenoid	When operating in duplex print mode, this reverses the direction of the main motor to feed paper into the duplex unit.
8.	T2 Home solenoid	This forces the transfer roller into contact with the ITB unit.
9.	ITB cleaning solenoid	This brings the cleaning blade into contact with the ITB unit

>>Clutch

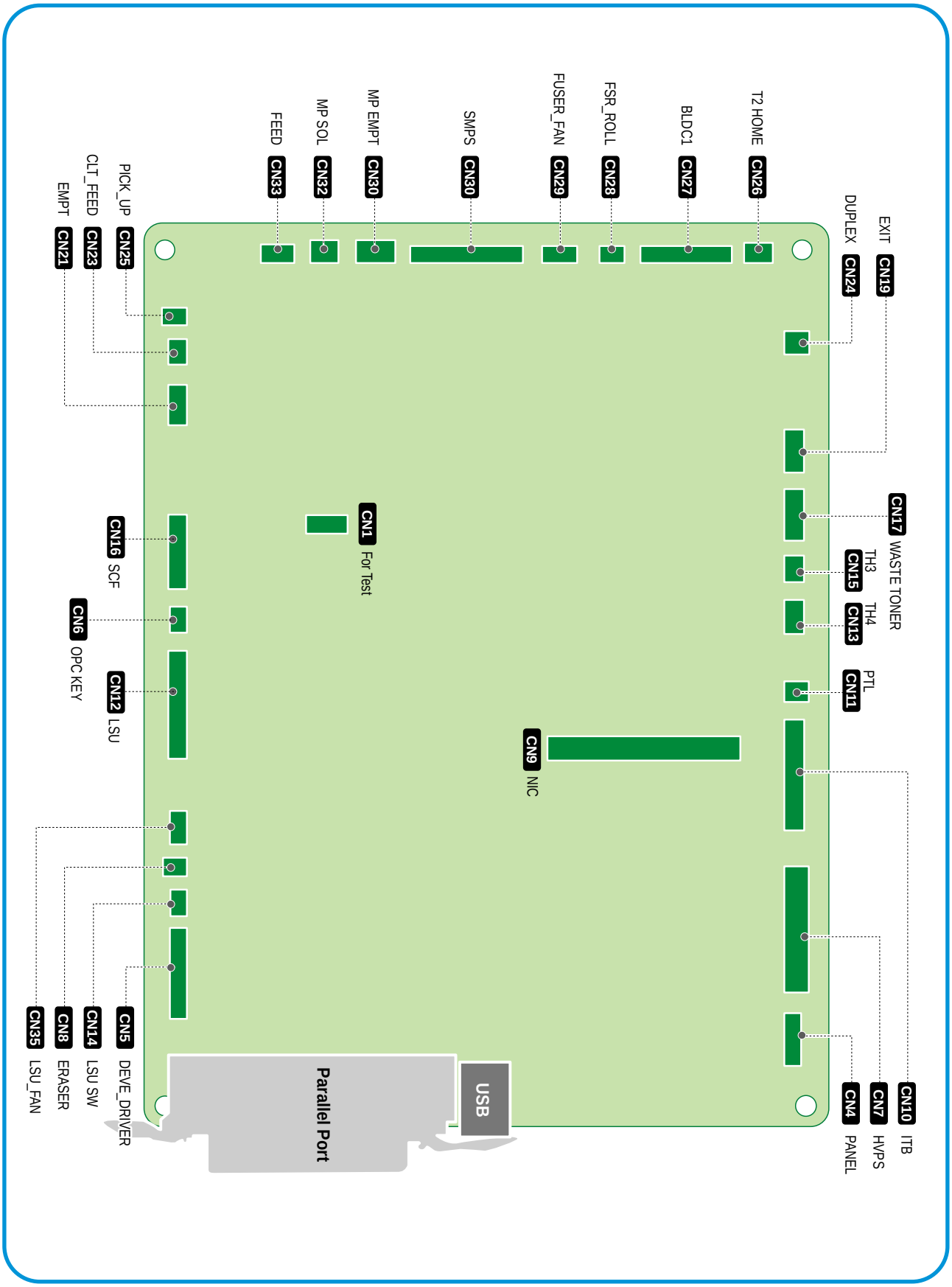
NO.	Name	Description
1.	Yellow DEVE clutch	Controls Yellow color toner cartridge drive
2.	Magenta DEVE clutch	Controls Magenta color toner cartridge drive
3.	Cyan DEVE clutch	Controls Cyan color toner cartridge drive
4.	Black DEVE clutch	Controls Black color toner cartridge drive
5.	Feed Regi. Clutch	Controls the location of picked-up paper

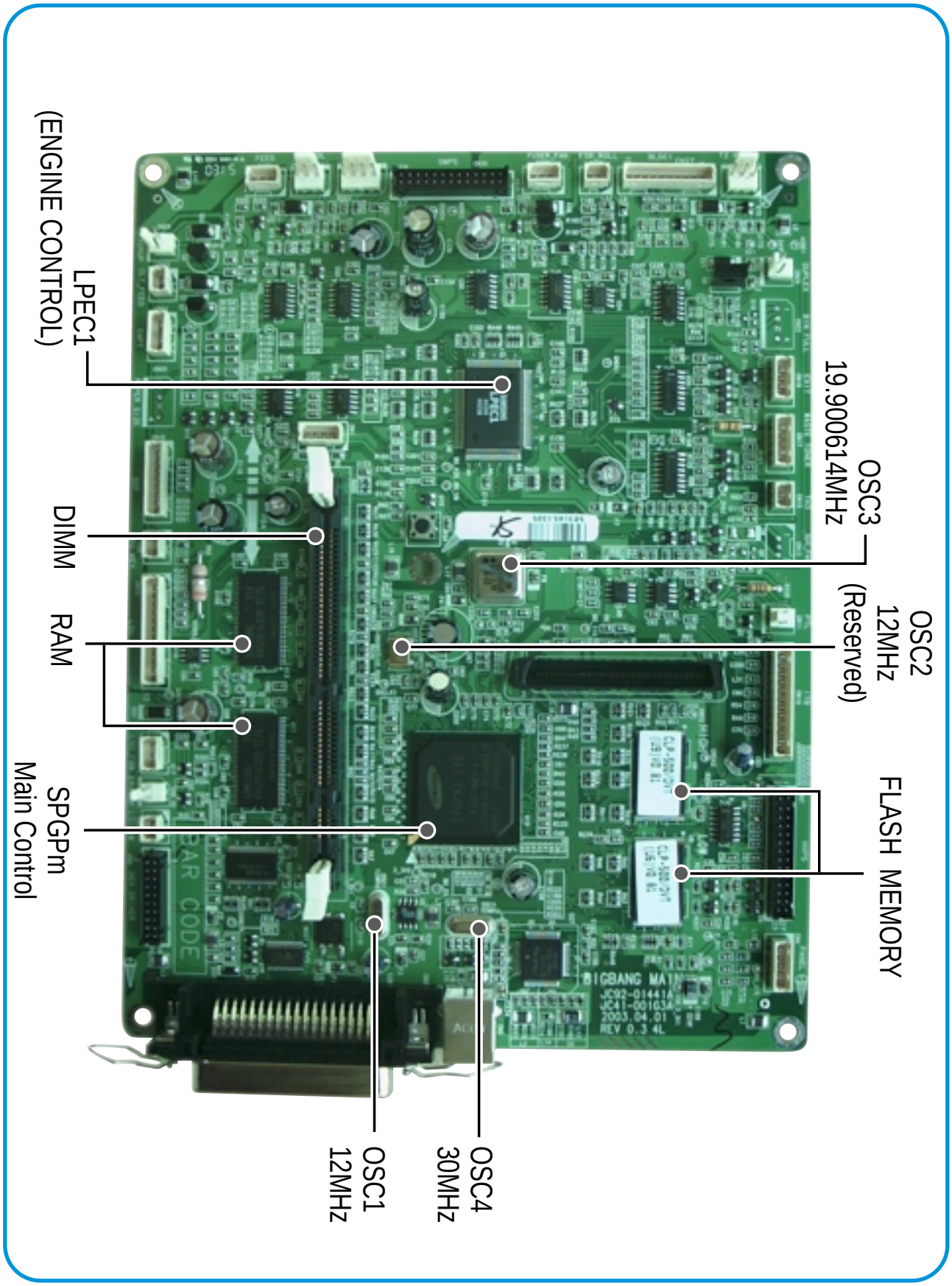
4.1.4 Sensor & Micro S/W Layout

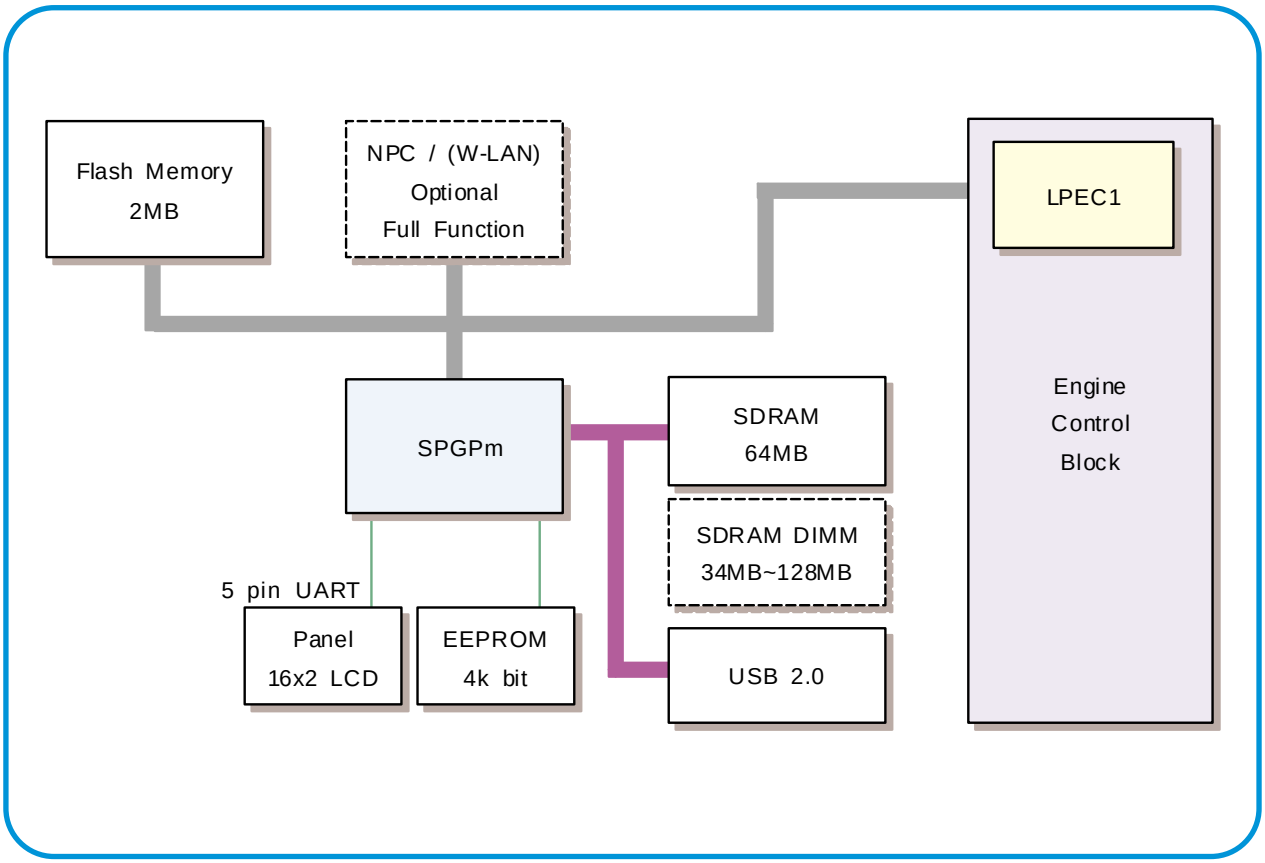
NO.	Name	Description
1.	Paper Empty Sensor(FCT)	This sensor detects paper in the first (main) cassette.
2.	Paper Empty Sensor(SCT)	This sensor detects paper in the second (optional) cassette.
3.	Paper Empty Sensor(MPT)	This sensor detects paper in the multi-purpose tray.
4.	Feed Sensor	This sensor must operate within a certain time after paper pick-up otherwise a JAM is detected
5.	ITB Home Sensor	This detects the position of the image transfer belt, and indicates the start location for image writing. It is used to ensure that all 4 colour images are correctly registered.
6.	CTD Sensor	This stands for Color Toner Density Sensor. It detects toner density of each color image that is formed on the OPC drum.
7.	Waste Toner Sensor	This detects whether the waste toner tank is mounted or not and the amount of waste toner in the tank.
8.	Exit Sensor	This detects whether printing paper is discharged or not.
9.	DEVE Cover Open S/W	This detects the open/closed status of the DEVE Cover.
10.	Duplex Cover Open S/W	This detects the open/closed status of the Duplex Cover.

Note: ** ITB Home Sensor and CTD Sensor are located in the ITB unit. If they develop a fault replace the ITB unit.*
** Please, refer to the Chap. 7 Arrangement and Adjustment, "Paper Path diagram", for the location of the paper empty sensor, feed sensor, and exit sensor.*
** Please, refer to page 4-2 for the location of the waste toner sensor, DEVE cover open S/W, and duplex cover open S/W.*

4.1.5 Main Controller PBA




LPEC1
(ENGINE CONTROL)
DIMM
RAM
SPGPm
Main Control
OSC3
19.900614MHz
OSC2
12MHz
(Reserved)
FLASH MEMORY
OSC1
12MHz
OSC4
30MHz



1) CPU BLOCK

This is the heart of the machine. A 120MHz - 32bit RISC processor is used to manage commands and data supplied by the host. This is converted into a bitmap image which is passed to the engine block for printing. The CPU is also used to control various other devices e,g, the USB 2.o Interface chip.

2) SPGPm overview

*** Package**

- 272 pins PBGA

* Po**wer**

- 1.8V(Core), 3.3V(IO) power operation
- P1284 inputs : 5V tolerant

*** Speed**

- 120MHz core(ARM946ES) operation, 60MHz bus operation
- Supportable Engine Speed : under 30ppm

*** Dual bus architecture for bus traffic distribution**

- AMBA High performance Bus (AHB)
- System Bus with SDRAM

*** Integrated ARM946ES**

- 32-bit RISC embedded processor core
- 16KB instruction cache and 16KB data cache
- No Tightly Coupled Memory
- Memory Protection Unit & CP15 control program

*** Direct connection up to 4 Flash ROM banks**
- Burst capability
- Programmable timing per bank
- Up to 16MB address per bank (Limited to 8MB per bank when nDREQ0 is enabled)

*** Direct connection up to 6 I/O banks & 4 DMA I/O banks**
- Programmable timing per bank
- Programmable recovery timing per bank for slow devices
- Up to 16MB address per bank (Limited to 8MB per bank when nDREQ0 is enabled)

*** Direct connection up to 5 SDRAM arrays**
- SDRAM controller supports PC-66, PC-100 and PC-133 SDRAMs running at 60MHz
- Up to 128MB per array, up to 512MB totally
- Wide supports for various SDRAM configurations, including programmable band and column address
- Programmable SDRAM refresh time interval

*** 4 General Purpose DMA controllers**
- Extensible architecture allows peripheral devices such as scan devices to have access to SDRAM arrays through DMA channels
- 8bits, 16bits and 32bits Data Transfer Modes are supported
- IO to Memory, Memory to IO, Memory to Memory transfer support

*** IEEE1284 compliant parallel port interface**
- Compatible ECP communications are supported
- Direct support for IEEE1284 compliant data transceivers

*** RSH**
- Fully Hardware Rotator, Scaler and Halftoner support
- Variable Image Scaler and Image Halftoning Unit for PCL6
- Pattern & Gamma Table Memory : 1024 x 8, 256 x 8 x 4

*** Graphic Execution Unit for Banding support of Printer Languages**
- Support up to 256 Bit Block Transfer
- Scan Line Transfer
- Polygon Filling
- Enhanced Graphic Order

*** Compression / Decompression**
- CODEC : Simplified JBIG algorithm for band compression / decompression
- HCT : Halftone Compression Technology (Byte Run-Length Type)
- Independent use of both Codec, but enabling only one Codec is desirable for bus traffic

*** UART**
- 3 Independent Full Duplex UART channels
- Max 16 bytes FIFO to handle SIR Bit Rate Speed
- DMA support for RX and TX of Channel0

*** Printer Video Controller for LBP engines**
- 20MHz video rate are targeted
- Two different kinds of Printer Video Controller (Selected by Software)
  - PVC : Printer Video Controller without RET Algorithm
  - HPVC : Printer Video Controller with RET algorithm
    (Line Memory & Lookup Table Memory : 512 x 8 , 4096 x 16)
- High performance DMA based Interface to Printer Engine

- Engine Controller
- Motor Control Unit
  - Motor Speed Lookup Table Memory (128 x 16 x 2)
- Pulse Width Modulation Unit
  - 4 Channels are supported
- ADC Interface Unit
  - 3 ADC Channels are available
  - ADC Core (ADC8MUX8) maximum clock frequency : 3 MHz
  - Coversion time : 4.3us (@3MHz)
- LSU Interface Unit

*** Timer**
- 3 Independent Programmable Timers
- Watch Dog Timer for S/W Trap and Tone Generator for MFP Application

*** Up to 5 External Interrupts support**
- High active interrupt signals
- FIQ/IRQ Interrupt mode selectable

*** Ethernet Controller (MAC)**
- Full compliance with IEEE standard 802.3, 802.3u specification
- Support 10/100 Mbps data transfer rates
- DMA engine with burst modes (4 words burst and 8 words burst are supported)

*** USB 2.0 interface**
- USB 1.1 backward compatible
- UDC(USB Device Controller) block and USB Physical block are integrated
- Both of High Speed(480Mbps) and Full Speed(12Mbps) are supported
- 2 DMA channels support : one RX Channel and one TX Channel
- Interrupt transfer support up to 6 Endpoints
- EP0 In/Out (Control transfer), EP1 In/Out (Bulk transfer), EP2 In/Out (Bulk transfer)

*** Debug support**
- Only MultiICE logic support from ARM9 series
- 5 JTAG connections : TCK, TnRST, TMS, TDI, TDO
- Internal logic for synchronizing TCK and high speed CLK
- Maximum TCK frequency : 20MHz (CLK x 1/6)

3) Memory Block

The operating program runs from memory (see below). It is used to store video data and printing jobs from the host. Standard factory fitted memory is 64MB, and can be expanded using a DIMM module mounted in the SODIMM connector. This is a user fit option, DIMMs from 64Mb - 128MB can be used giving a total of up to 192MB of memory. DIMM modules are non standard - only Samsung product should be used.
The memory controller is located in the SPGPm controls the SDRAM memory connected using a 32 bit 60 MHz bus.

4) ROM Block

An 2MB flash ROM is used to store the OS. The ROM controller is contained in the SPGPm processor. When initializing after power on the contents of ROM are downloaded into memory and the OS is run from within memory.

5) USB 2.0 Block

A Netchip Co. NET2270 is used to provide support for USB2.0 and is capable of interface speeds up to 480Mbps. Under control of the SPGPm chip DMA is used to transfer incoming data directly into memory.

6) IEEE 1284 Block

An IEEE 1284 controller is controlled directly by the SPGPm processor. ECP mode is supported.

7) Option Block

An Ethernet card can be attached using the 100 pin connector. It is connected directly to the SPGPm processor and communicates using a 16bit bus.

8) OPE Panel

The OPE panel is controlled by a UART Block located in the SPGPm and it displays printer status and helps the user to setup the printer. Various data is transferred using a serial interface between a Mycom located in the OPE panel and the UART in the SPGPm.

9) Memory

There are two types of memory, program memory that uses flash and a working memory that uses SDRAM. When printing working memory is used as band memory.

10) Sensor

Various sensors are used to detect various conditions during the printing process. These include paper empty sensor, feed sensor, exit sensor, CTD sensor, ITB sensor, etc.

11) Actuator Control

This section drives the various motors and clutches that are required for the paper feed and printing process. These include DEVE cartridge clutches (4 off), Feed Regi clutch, DEVE solenoids (4 off), Pick solenoids (2 off), Duplex solenoid, ITB and T2 solenoids.

12) ADC

The ADC unit is used to sense a number of analog parameters used in the set. These include Fuser and Set temperatures, OPC, ITB and Toner OEM resistors, Waste Toner tank full / present, Waste Toner Motor and T1 / T2 / Charge currents, CTD sensor.

13) DAC

The DAC is used to control the light intensity emitted by the CTD LED.

4.1.6 SMPS (Switching Mode Power Supply) PBA

The SMPS unit supplies DC power for driving the whole system, it also contains an AC heater control unit that supplies power to the fuser.

1) DC output

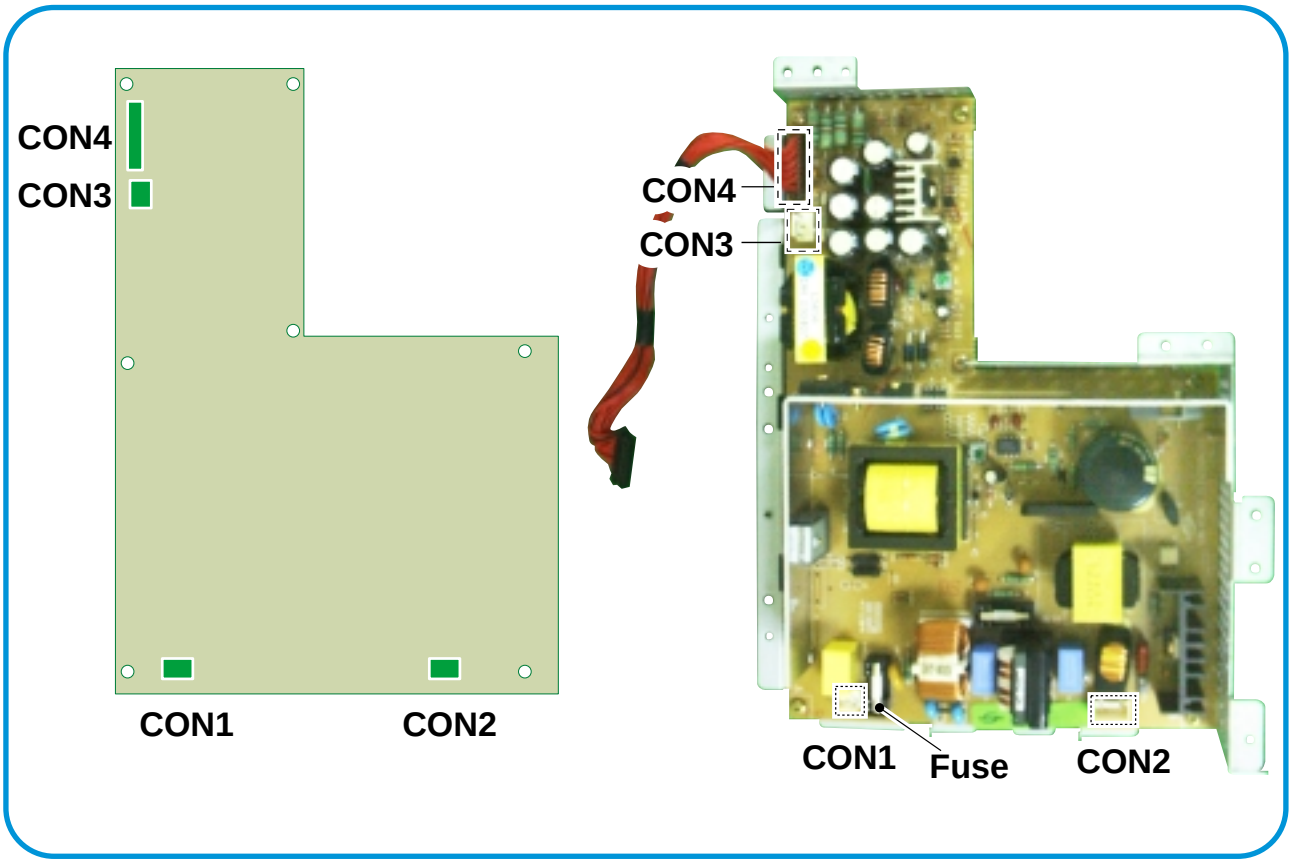
- Main controller PBA, OP panel, SCF, Developer driver PBA

2) AC output

-Fuser unit (Heat lamp, Thermostat)

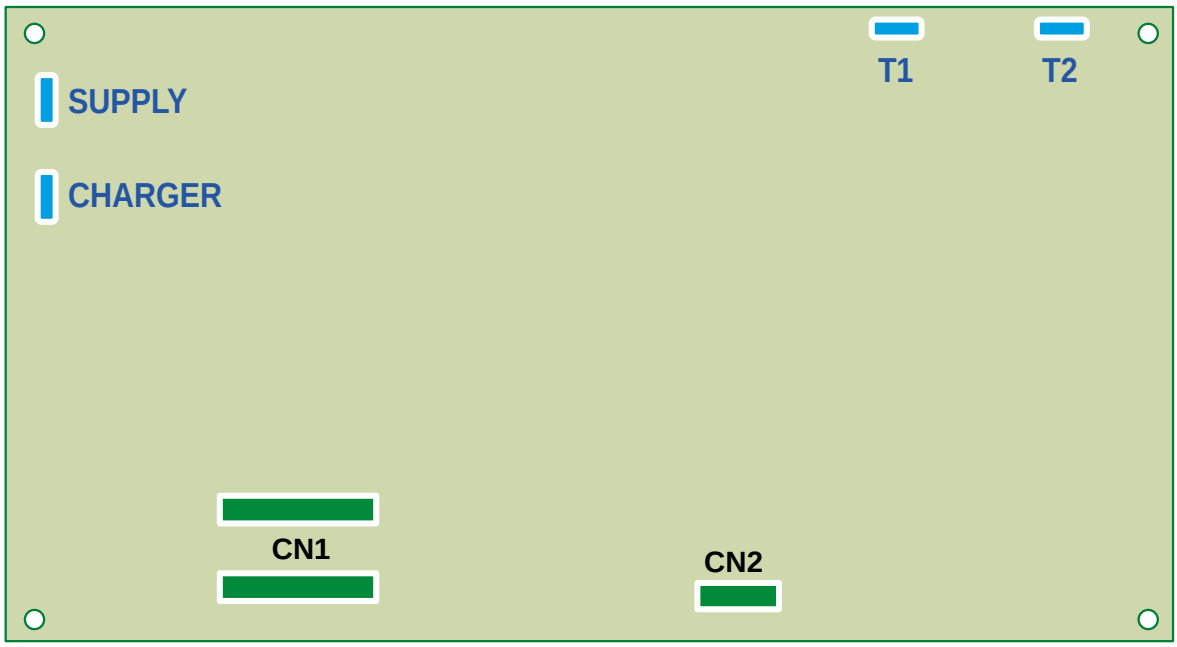
3) Output voltage

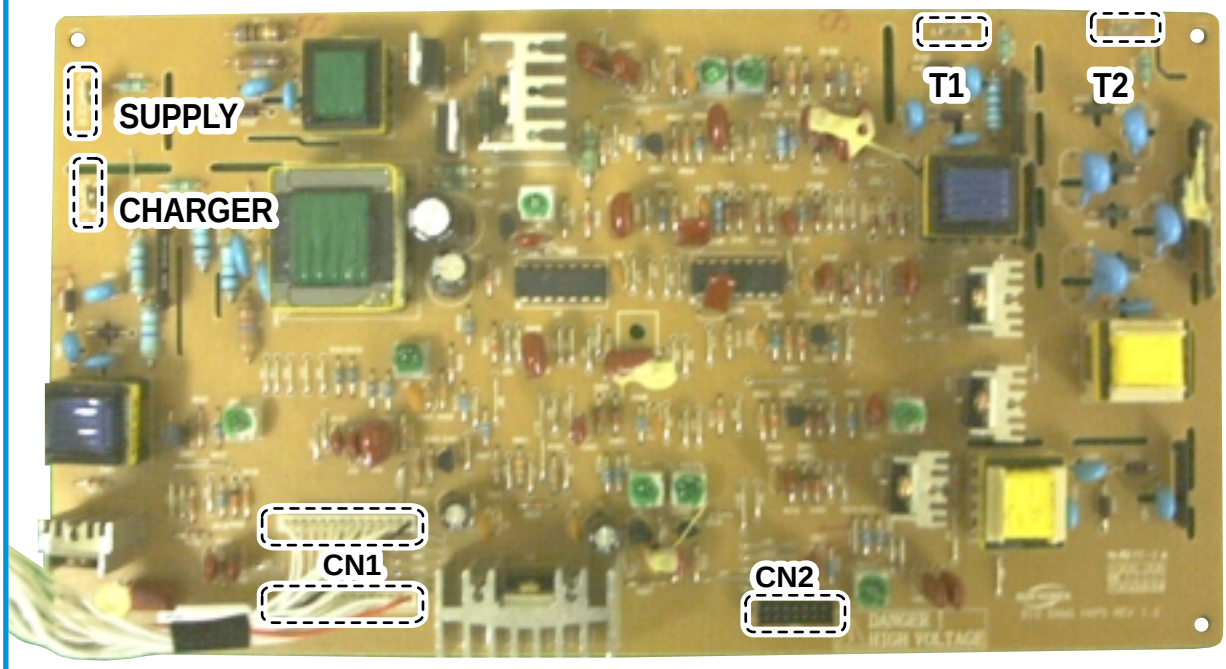
NO	Item	CH1	CH2	CH3	CH4
1	Channel name	+3.3V	+5V	+24.0V	+24.0VF
2	Rated outputting voltage	3.3V ± 4%	+5V ± 4%	+24V + 15%/-10%	+24V + 15%/-10%
3	Uses	MICOM,CMOS LOGIC	MICOM,CMOS LOGIC	MOTOR,FAN	MOTOR,FAN



4.1.7 HVPS (High Voltage Power Supply) PBA

The HVPS PBA uses the 24V created by the SMPS to generate the high voltages used by the charger, supply, T1,T2 and DEVE processes. For bests quality images these high voltages must be , controlled accurately to maintain the print quality. The high voltages produced are supplied to toner, OPC cartridge, ITB unit, and transfer roller.





1) Charging Voltage: Charger

* Function : This high voltage is used to charge the surface of the OPC to about -500volt~800volt.
* Output voltage : -200V~-2.0KV DC +/- 3% (Duty is changeable, no loading)
* Error type :If MHV was not present, the surface of the OPC is not charged. As a result, toner on the developer roller is transferred over to the OPC drum: therefore, black paper could be printed out.

2) Transfer high voltage: T1(+)

* Function : This high voltage is used to transfer toner from the OPC drum to the ITB unit.
* Output voltage : +400V~ +3.5KV DC +/- 3% (Duty is changeable, no loading)
* Error type : If T1 was not present, it is not possible to transfer toner from the OPC drum to the ITB. As a result, printer output could be faint.

3) Transfer High Voltage: T2 (+)

* Function : this high voltage is use to transfer toner from the ITB to the paper.
* Output voltage : +400V~ +5KV DC +/- 3% (Duty is changeable, no loading)
* Error type : If T2 was not present, it is not possible to transfer toner from the ITB to the paper. As a result, printing output could be faint

4) Cleaning voltage: T2 (-)

* This high voltage is used to transfer (-)toner, remains on transfer roller, from the Transfer Roller to the ITB unit.
* Output voltage : There is no feedback control, and it outputs a fixed voltage (-900V).
* Error type : Toner contamination occurs on the reverse side of the printed-paper.

5) Supplying voltage: Supply

* Function : Supply the duplicated (AC+DC) voltage from the HVPS to the Deve Drive Board.
* Output voltage

  AC Voltage f : 1 Khz ~ 3Khz (Duty is changeable)

  AC Voltage V_{p-p} : 1KV ~ 3KV

  DC : -100V ~ -1000V

* Error type: 1. If this voltage is GND, print density is extremely low.
  2. If this voltage is floating due to unstable contact point at the HV terminal, density becomes so low as that printing results are not visible to the naked eye.

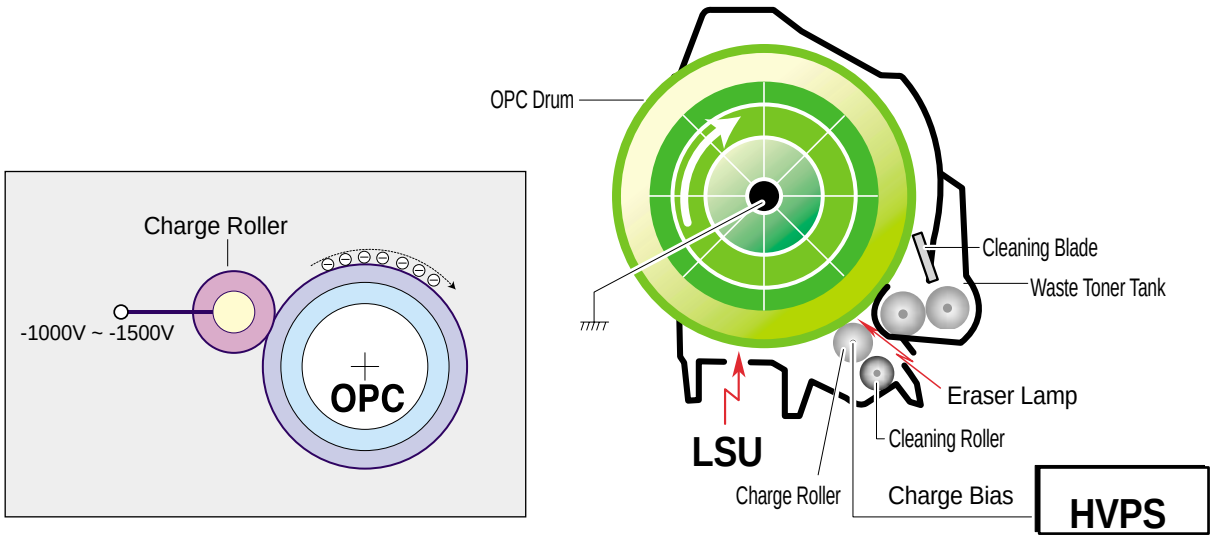
5 System Outline

This chapter describes the functions and operating principals of the main components.

5.1 CLP (Color Laser Printing) Process

5.1.1 OPC Drum Unit (Charge Section)

The OPC Unit is the image formation unit and it consists of the OPC drum, waster toner assembly, charge roller assembly, etc. (see diagram below).



1) Structure

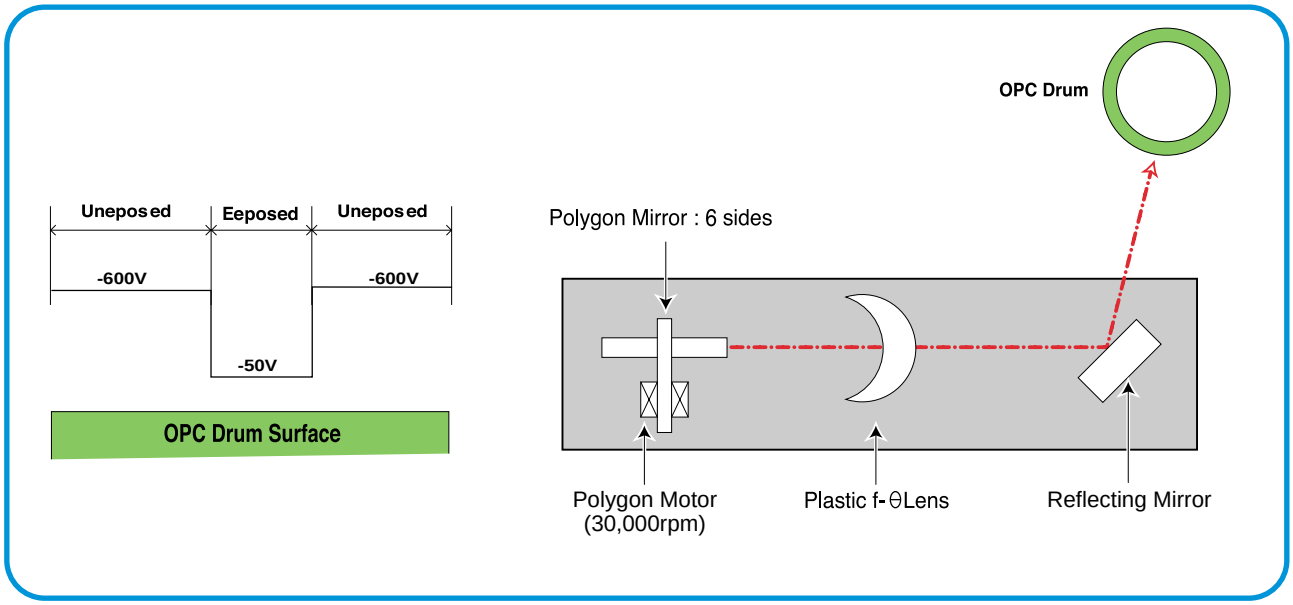
* OPC drum: The laser light coming from the LSU forms an latent electric image on the surface of the OPC drum.
* Cleaning Blade: Removes remaining unwanted toner from the OPC drum.
* Waste toner tank: Collects and stores the waste toner.
* Charge roller: The charge roller is charged to a negative high voltage (-1KV~1.5KV) It is in contact with the OPC drum and produces a uniform (-) voltage on its surface of approximately -500~-800V.

2) Type

* Life span: 50K Images (Color 12.5K)
* Waste toner removal: Transferred to a user replaceable tank
* Waste tank sensors: LED type, detects tank present and tank full
* OPC drum diameter: 120mm
* Power: Main motor (BLDC)
* Charging method: Charge roller
* Eraser method: LED lamp (+5V/2Pin)
* PTL: LED lamp (+5V/2Pin)

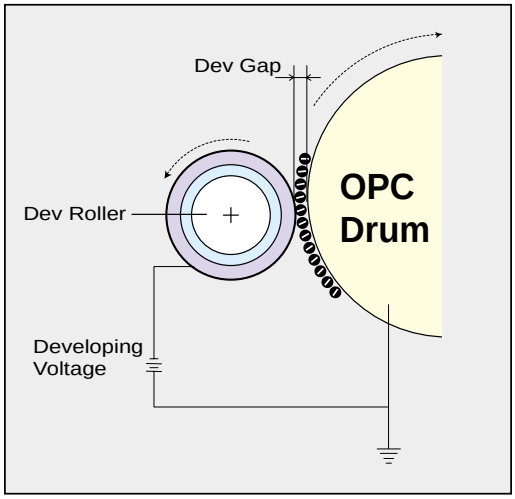
5.1.2 LSU (Exposure)

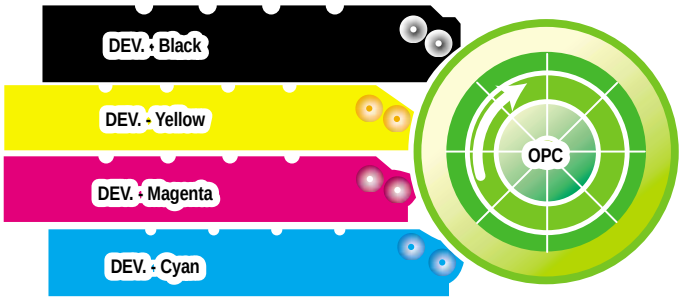
The bitmap image data stream is used to switch the LSU data beam. Where white paper is required the beam is off, where ink is required the beam is turned on. When the laser is on and the beam strikes the OPC drum surface the charge is reduced to -50V, where the beam is switched off the charge on the OPC surface remains at -600V. In consequence a latent image is formed on the drum surface.



5.1.3 Toner Cartridge (Development Section)

In the development stage toner particles are transferred from the toner cartridge onto the surface of the OPC drum. The OPC drum and the developer roller rotate in opposite directions. Toner on the developer roller is charged to the developing voltage (see page 5-7). Toner is attracted to the OPC drum in those areas where the OPC drum surface charge is -50V. Toner is not attracted to those areas of the surface carrying a -600V charge.





1) Type

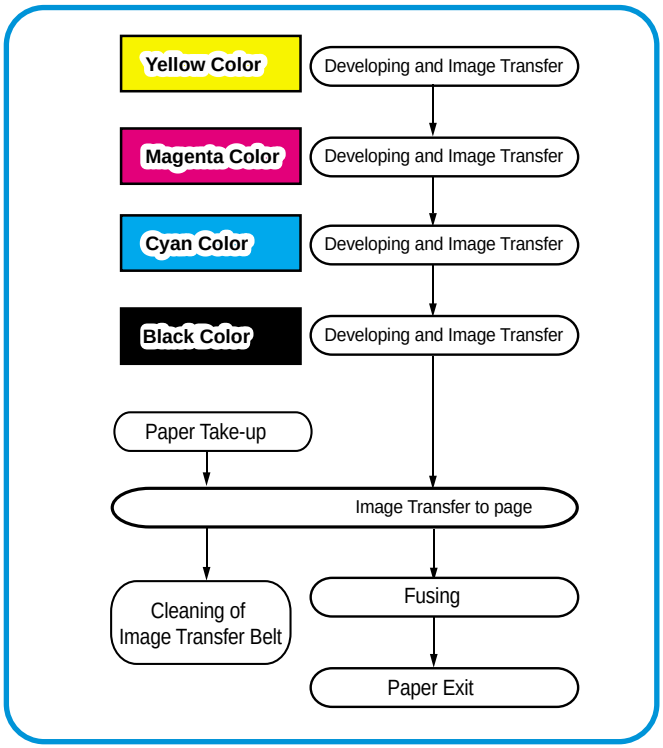
* Developing method: Non-magnetic, Mono-component developing system.
* Toner cartridge order: K, Y, M, C from top.
* Developing sequence: Y, M, C, K
* Life span: 7K(K) / 5K(C, M, Y)
* Power: DEVE motor (BLDC)
* Power transmission: Electric clutch
* Toner remaining: TRC sensor (see page 5-7) + Dot counting method

2) Developing state of color

The page image is built up from each of the 4 colors and transferred to the paper as described below.

> Developing sequence: Y, M, C, and K

1) A latent image containing only yellow toner is created on the OPC drum and then transferred onto the ITB.
2) A latent image containing only magenta toner is created on the OPC drum and then transferred onto the ITB to add to the yellow image already in the ITB.
3) A latent image containing only cyan toner is created on the OPC drum and then transferred onto the ITB, adding to the 2 colors already present on the ITB
4) A latent image containing only black toner is created on the OPC drum and then transferred onto the ITB, creating an image on the ITB consisting of the 4 colors.
5) The Image on the ITB is secondly transferred onto paper using the T2 transfer roller.
6) The image on the page is then fused and the paper is ejected into the output tray.



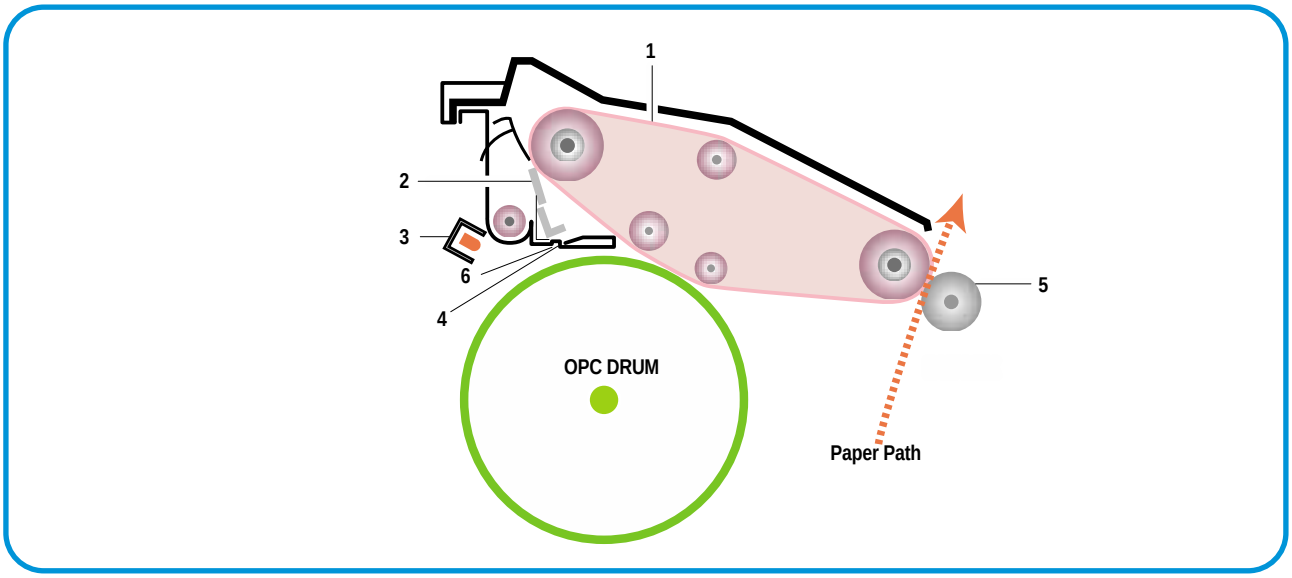
3) Toner cartridge empty detection

Software Dot count, Roller count + TRC Sensor

5.1.4 Image Transfer Section

The toner image formed on the OPC drum is transferred to the ITB (Image Transfer Belt), this is called the primary image transfer. When the final image has been built on the ITB it is transferred onto paper, this is called the secondary image transfer.

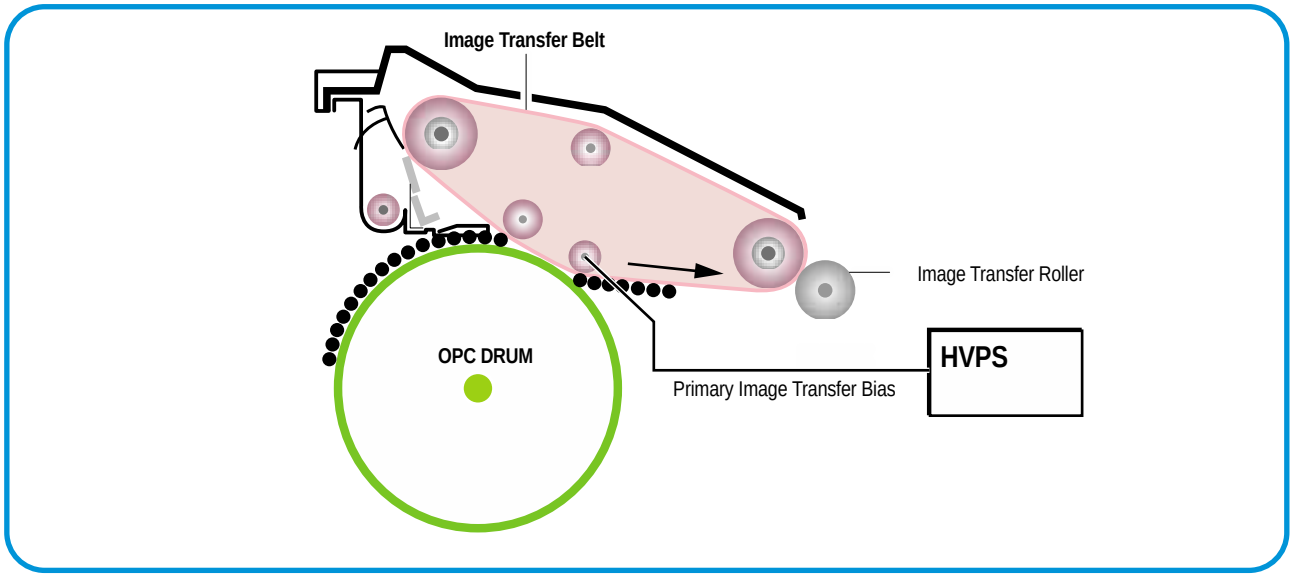
1) Structure



NO.	Name	Description
1.	Image Transfer Belt	Used to build up the 4 color image from the OPC drum. Colors are transferred in the order Y, M, C, K
2.	Image Transfer Belt cleaner	After the final image is transferred onto paper any waste toner is removed from the transfer belt using this cleaning blade
3.	PTL (Pre-Transfer Lamp)	Reduce the electric potential of OPC Drum surface before primary image transfer the image on the OPC Drum.
4.	CTD (Color Toner Density) sensor	This sensor is used by the engine to monitor the density of toner deposited on the OPC drum. It is also used as an indication of 'Toner Empty'
5.	Image Transfer Roller (T2 Roller)	This transfers the final toner image on the image transfer belt to paper.
6.	ITB Home Sensor	This sensor is used to ensure that each of the 4 color images starts at exactly the same point on the ITB. It works by detecting a fixed point on the belt.

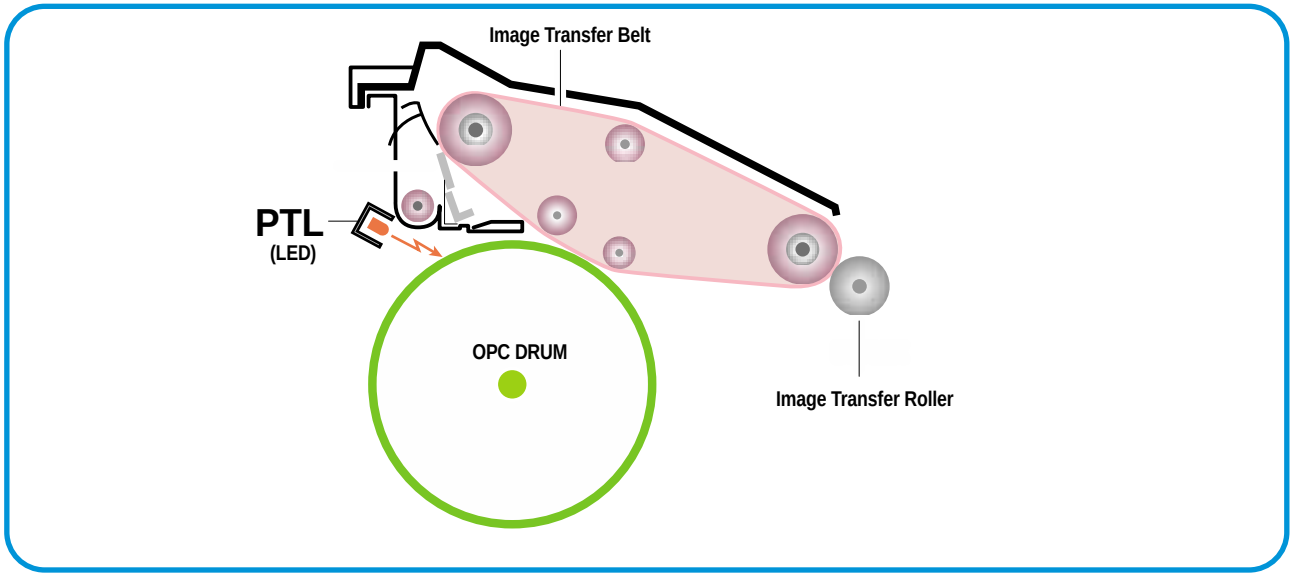
2) Primary Image Transfer

A colored page is split into 4 component color parts and developed one color at a time in turn on the OPC (in the order Y, M, C, K). The final image is built up on the ITB by transferring these separate color images from the OPC drum.



3) PTL (Pre-Transfer Lamp)

It is arrayed LED on PCB Board. Main function is improving the T1 utility factor by reducing the adhesive strength of OPC and Toner by irradiation on the OPC Drum formatted the image.



4) CTD (Color Toner Density) Sensor

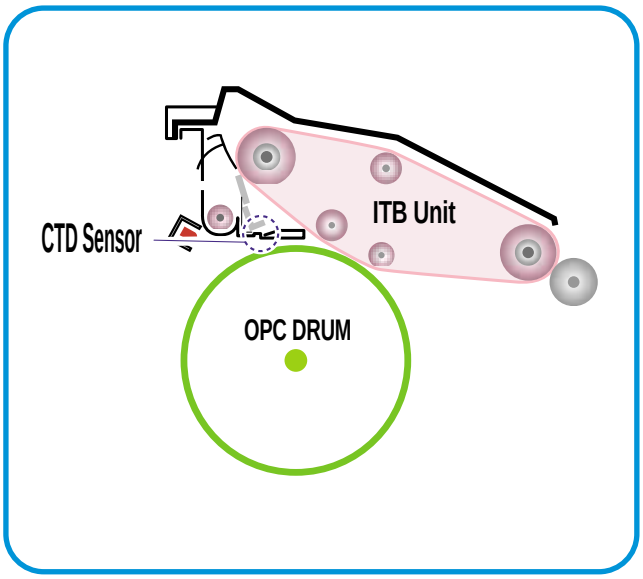
The CTD sensor detects density of toner of each of the 4 colors formed on OPC drum, and Main controller decides an optimum developer bias voltage value for printing.

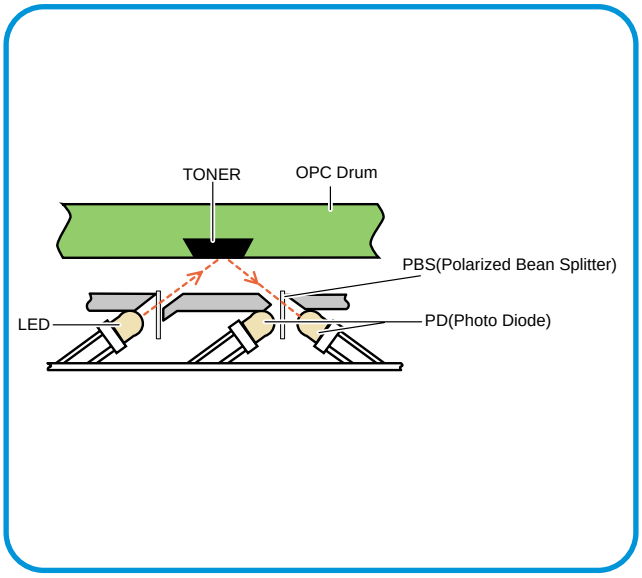
*** Structure:** An Infrared LED is used as a sending unit and PDs (Photo Diodes) are used as a receiving unit. A PBS (Polarized Beam Splitter) is used to separate transmitted light from the LED and reflected light from the OPC / toner surface.

*** Principal:** The OPC surface and toner have different light reflecting characteristics. The OPC surface produces a specular reflection whilst the toner produces a scattered reflection. By detecting this difference the amount of toner present on the OPC surface can be measured by the sensor.

*** Caution:** Be careful not to contaminate the surface of the CTD sensor, as this will cause problems with color reproduction and quality.

*** Process:** The TRC (Tone Reproduction Curve) control process is used at power on, after waking from sleep mode , after every 100 pages of printing, and after fitting a new toner cartridge or OPC drum to check the toner density transferred onto the OPC. Small patches of 6.25%, 25%, 37.5%, 50%, 62.5%, 75%, 87.5%, and 100% density for each of the 4 colors are deposited on the OPC drum surface and the CTD is used to detect how much toner is transferred. Based on an internal calibration curve the TCR control process adjusts the developer bias voltage to ensure that optimal toner transfer takes place.





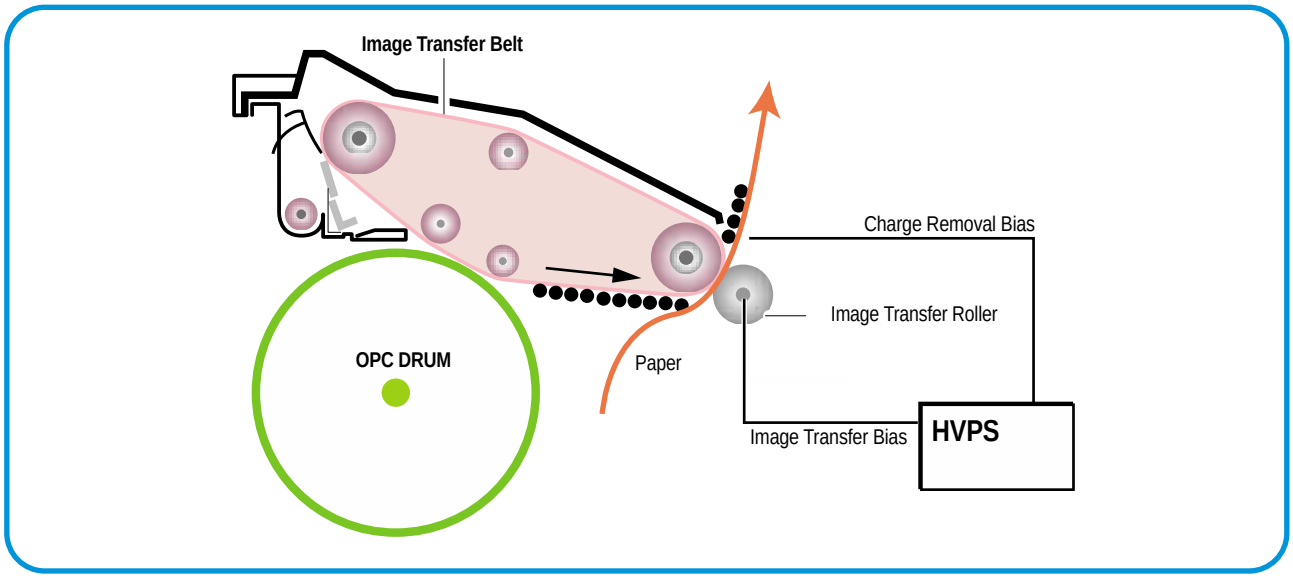
5) Secondary Image Transfer

The image is built up on the ITB (primary image transfer). This image is then transferred onto paper using the T2 transfer roller (roller transfer system) this process is known as the secondary image transfer.

* The HVPS applies the Image Transfer Bias voltage to the Image Transfer Roller (T2), this transfers the image from the belt onto the paper.
* When the image is to be transferred from the ITB to the paper the image transfer roller pressure contact solenoid is activated and this activates a cam which moves the T2 roller into contact with the belt.
*After the transfer has taken place any remaining charge on the paper is removed by applying a charge removal bias (generated in the HVPS) to a charge removal plate

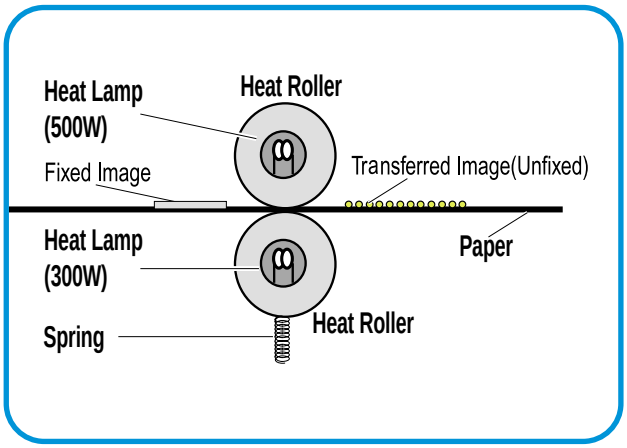
>Type

* Transfer method: Semi-conductive roller contact method
* Effective transferring range: 218mm (i.e. maximum image length)



5.1.5 Fuser (Fusing Section)

Toner that has been through the primary and secondary image transfer processes is fixed, semi-permanently, to the paper.
The fuser unit consists of heat lamps (2 ea), heat rollers (2 ea), thermistor, and thermostats (2 ea). It melts the toner onto the paper using pressure and high temperature to complete the printing process.



1) Thermostat (2pieces)

If the heat lamps or heat rollers overheat the thermostat turns off power to the lamps in the fuser unit to prevent fire. It is a temperature cut-off device.

2) Thermistor

The thermistor detects the temperature of the heat roller's surface, and feedbacks the information to the main processor which uses this information to control power to the fuser lamps in order to maintain the heat roller at a steady temperature.

3) Heat Roller (2pieces)

Halogen lamps are used to heat the heat rollers. The heat rollers have a special Teflon surface which ensures that any melted toner which comes into contact with the heat roller surface does not stick. Paper passes between the two rollers which evenly heat the paper from both sides to melt the toner and semi-permanently fix it to the paper.

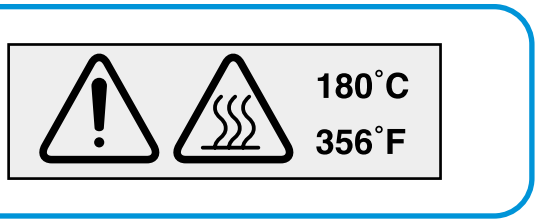
4) Safety Information

> Overheat protection

* 1st level protection: Print engine is stopped if overheat is detected
* 2nd level protection: Software turns off lamp power if overheat is detected.
* 3rd level protection: Thermostat turns off lamp power if overheat is detected.

> Protecting device

* Fuser unit power is turned off when the duplex cover or the toner cartridge door is open.
* This machine keeps the surface temperature of the fuser unit cover under 80°C, and it has a caution label attached inside the exit cover where it can be easily seen by the user.



5.1.6 Exit

After passing through the fuser paper is ejected into the paper exit tray. Any static electrical charge is removed by static discharge brushes.
When operating in duplex print mode, after printing the front side of the page, the paper exit roller reverses to feed the paper back into the machine in order to print the second side of the page.

5.1.7 Waste Toner Collection Process

Waste toner on the OPC drum and on the image transfer belt is collected into the waste toner tank.

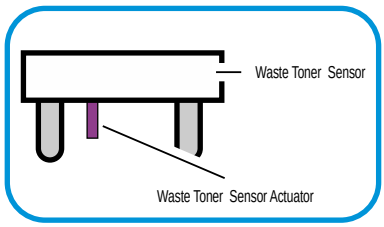
* After transferring the toner image on the OPC drum to the ITB, a cleaning blade scrapes waste toner from the OPC drum, and the waste toner is collected into a waste toner tank.
* An Image Transfer Belt cleaner scrapes waste toner from the image transfer belt, and the waste toner is collected into a waste toner tank.

1) Waste toner tank sensor

A waste toner sensor detects the presence of the waste toner tank and also detects if the tank is full. This is an On / Off detection. Do not operate the printer without a waste toner tank.

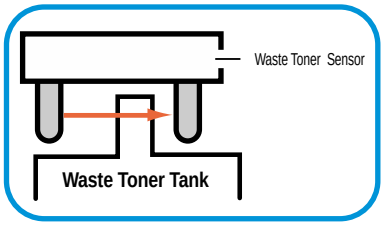
> No waste toner tank

When the waste toner tank is not installed the waste toner senor actuator blocks light from the senor LED.



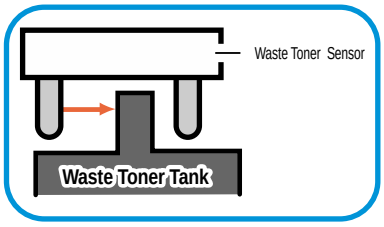
> A little waste toner

When the sensor LED light reaches the photo sensor passing through the waste toner tank this indicates that the tank is not full.



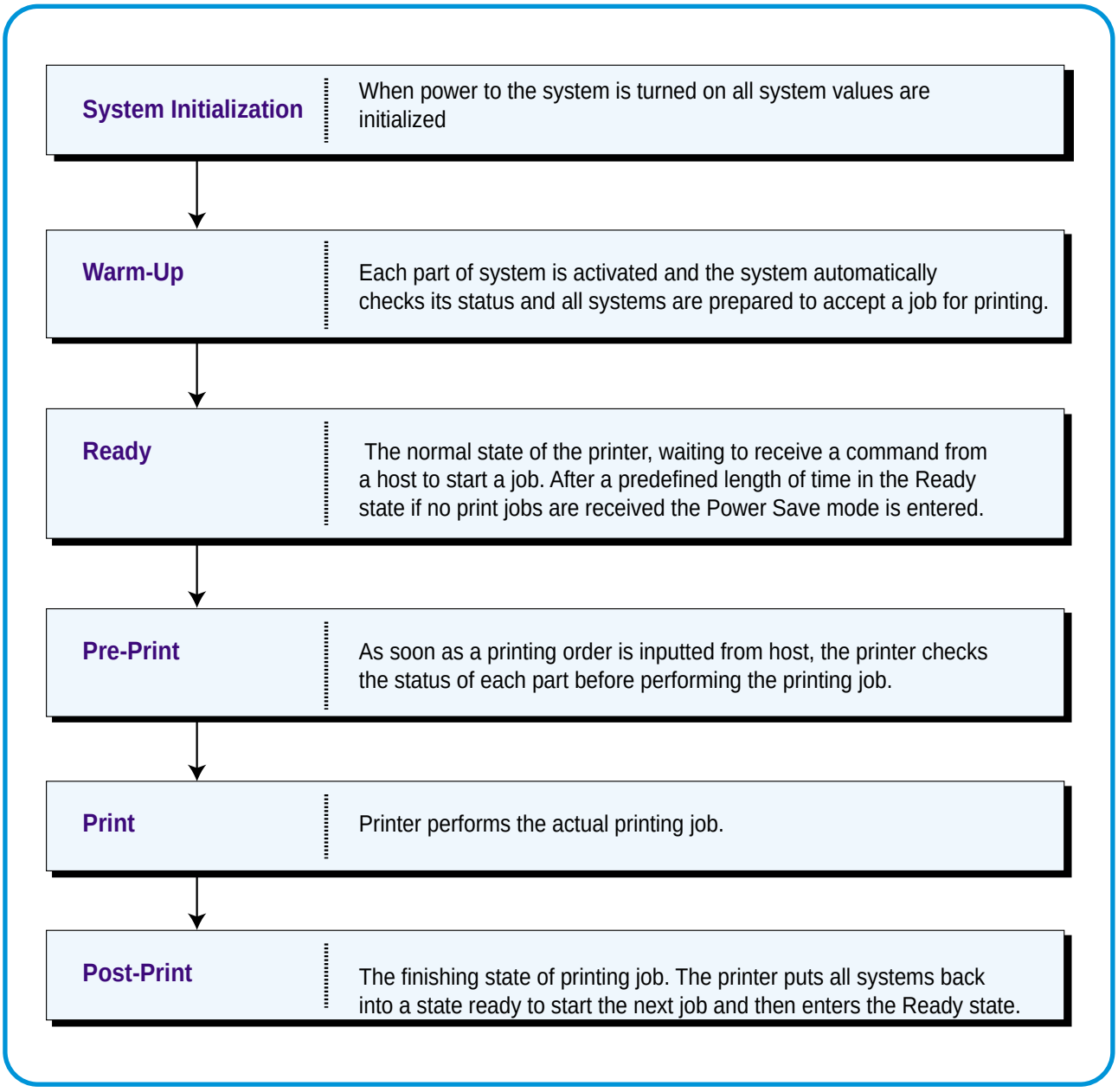
> Waste toner tank full

When the waste toner tank is full to the level of the waste toner sensor, the senor LED light is blocked by waste toner indicating that the tank is full.



5.2 Outline of Engine Firmware

The CLP 500/500N use 4 different colored toners (Yellow, Magenta, Cyan, Black) and it is a laser color printer. Engine firmware controls the print processes, driving the print engine, paper feed, developer, fuser, and paper discharge systems. It has both color and mono printing modes. The printer process sequence is as follows:


System Initialization
When power to the system is turned on all system values are initialized
Warm-Up
Each part of system is activated and the system automatically checks its status and all systems are prepared to accept a job for printing.
Ready
The normal state of the printer, waiting to receive a command from a host to start a job. After a predefined length of time in the Ready state if no print jobs are received the Power Save mode is entered.
Pre-Print
As soon as a printing order is inputted from host, the printer checks the status of each part before performing the printing job.
Print
Printer performs the actual printing job.
Post-Print
The finishing state of printing job. The printer puts all systems back into a state ready to start the next job and then enters the Ready state.

5.2.1 System Initialization

The system initialization process is carried out immediately after power on. The following tasks are performed.

1) Initialize ASIC (EPLD)
2) Initialize system variables
3) Initialize a virtual timer
4) Initialize fuser control
5) Initialize ADC
6) Set-up ITB HOME interrupt

5.2.2 Warm-Up

In the warm-up stage, the following tasks are performed.

1) Self Test

* System error check
* Cover open check
* Device (ITB, OPC, DEVE cartridge) check
* Heating error check
* Motion of motor and jam & paper empty check
* Check Feed and exit sensors. If paper is detected it is ejected. If the paper detection does not clear a jam recovery is carried out and the paper drive unit is instructed to drive for the maximum permitted paper length.

2) Heat Control

The heater control unit separately manages the temperature of the heat lamps.

* Target temperature (165°C)
* Temperature below 130°C - heat unit fully on,
* Temperature above 135°C temperature is controlled by reading the temperature value every 10msec.

3) TRC (Toner Reproduction Curve)

The TRC process (see page 5-7) is carried out and the developer bias voltage determined.

4) Cleaning

Transfer rollers, OPC and ITB are electrically and mechanically cleaned.

5.2.3 Ready

1) Host interface is monitored for print commands
2) Heat control
* Target temperature (165°C)
* Every 40 seconds, temperature value for the previous 250ms is read and a proportional control process is carried out

3) This is the standby mode entered after warm-up or after completing a print job.
4) System Error check
5) Power save state is entered after timeout

> Wakeup condition
* When a "wakeup" order is received
* When a cover is opened and then closed
* When the level of the paper empty sensor changes.

> Heat lamp is off

5.2.4 Pre-Print

This is the preparation stage before processing a printing job and after receiving a print command from a host.

1) Start LSU
* Run Scanning motor
* Check motor ready
* Turn LD on

2) Start BLDC motor, Eraser/PTL on
* Run main motor
* Check lock signal
* Run developer roll motor
* Check lock signal

3)Turn High Voltage On
* Charger on
* Developer high voltage off

4) Cleaning
* OPC cleaning (Mechanical motion)
* ITB cleaning

5) Jam check
6) Motor Unlock Check
7) Check and Set a High Voltage Condition (T1, T2, Charger)
8) Initialize Printing Parameters
* Paper size, copies, cassette ...
* Image pixels, image times, y-offset, x-offset
* Flags

9) Check Print mode
* Color print mode:
  - Except legal & OHP/Legal/OHP
  - Simplex/Duplex
* Mono pint mode: Simplex/Duplex/OHP

5.2.5 Print

After sensing the ITB home position the following tasks are performed,

Send Psync signal to controller -> Operates virtual timer for each color(Vdata) -> Forms latent image on OPC drum -> Supplies toner on OPC drum -> Transfers image to ITB (T1) -> Pickups a paper -> Transfers image to a paper (T2)

1)Check ITB Home (Treated by Home interrupt): It is designed to detect ITB HOME every 3 seconds.

a) ITB Home sensing
b) If a test mode is set up, a test pattern is printed.
c) A counter value is set up that addresses the timing to turn on page sync.
d) The virtual timer for each color (Y, M, C, and K) is set up
e) If Home is not detected every 3 seconds, an error is reported.

2)Paper path and print

a) Printing paper from cassette, MPT and SCT is picked up
b) Control paper path
 * Stop when the leading edge of a piece of paper reaches the feed sensor.
 * If the leading edge doesn't reach the feed sensor, it is an error.
 * While transferring the last color to the ITB, re-feed the paper.
 * Checks if the paper reaches the exit sensor in certain time. If it reaches too soon, or it doesn't reach, it is an error.
 * Checks that the paper passes the exit sensor or not.
c) Jam check
 * Check reaching time and passing time for the paper reaching and passing the feed and exit sensors. If time exceeds a certain time, it is an error.
d) Duplex control
 * After passing the exit sensor, the duplex clutch is operated to mechanically change the direction of the paper flow in order to print the other side.
e) Printing sequence and motion for each color
 * Use a virtual timer for printing the colors in sequence. (Yellow, Magenta, Cyan, Black)

> What is a Virtual Timer?

A virtual timer is a mathematical function for creating regular action at fixed time intervals. The standard setting is for a 5msc timer interrupt.

5.2.6 Post-Print

This is the last stage of the printing process. Its functions are described below.

a) Clean transfer rollers
b) Stop all virtual timers
c) Initialize parameters used in the printing process.
d) Stop motors

6. Disassembly and Reassembly

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6.1.1 Cautions when assembling and disassembling . . . . . page(6-2)
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6.4.20 Pick-Up Ass'y . . . . . page(6-45)

6.1 Precautions when replacing parts

6.1.1 Precautions when assembling and disassembling

* Use only approved Samsung spare parts. Ensure that part number, product name, any voltage, current or temperature rating are correct. Failure to do so could result in damage to the machine, circuit overload, fire or electric shock.

* Do not make any unauthorized changes or additions to the printer, these could cause the printer to malfunction and create electric shock or fire hazards.

* Take care when dismantling the unit to note where each screw goes. There are 19 different screws. Use of the wrong screw could lead to system failure, short circuit or electric shock.

* Do not disassemble the LSU unit. Once it is disassembled dust is admitted to the mirror chamber and will seriously degrade print quality. There are no serviceable parts inside.

* Regularly check the condition of the power cord, plug and socket. Bad contacts could lead to overheating and firfe. Damaged cables could lead to electric shock or unit malfunction.

6.1.2 Preautions when handling PBA

Static electricity can damage a PBA, always used approved anti-static precautions when handling or storing a PBA.

>> Precautions when moving and storing PBA

1. Please keep PBA in a conductive case, anti-static bag, or wrapped in aluminum foil.
2. Do not store a PBA where it is exposed to direct sunlight.

>> Precautions when replacing PBA

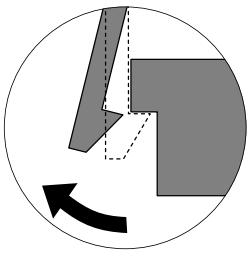
1. Disconnect power connectors first, before disconnecting other cables
2. Do not touch any soldered connections, connector terminals or other electronic parts when handling insulated parts.

>> Precautions when checking PBA

1. Before touching a PBA, please touch other grounded areas of the chassis to discharge any static electrical charge on the body.
2. Take care not to touch the PBA with your bare hands or metal objects as you could create a short circuit or get an electric shock. Take extra care when handling PBAs with moving parts fitted such as sensors, motors or lamps as they may get hot.
3. Take care when fitting, or removing, screws. Look out for hidden screws. Always ensure that the correct screw is used and always ensure that when toothed washers are removed they are refitted in their original positions.

6.1.3 Releasing Plastic Latches

Many of the parts are held in place with plastic latches. The latches break easily; release them carefully.
To remove such parts, press the hook end of the latch away from the part to which it is latched.



6.2 Parts for Maintenance and Repair

6.2.1 Replacing cycle of parts for maintenance and Repair

Some of the parts in this printer have a limited life, shorter than that of the whole machine. These parts must be replaced periodically.
The table below shows the interval at which these parts should be replaced.
The table shows the life of each part, and is measured when using A4 paper. When servicing a machine always check the status of these parts using the control panel and ensure that parts are replaced at the appropriate times otherwise a general degradation in print quality will occur.

COMPONENT	REPLACEMENT CYCLE	REMARK
Toer Cartridge(Black)	intial(2,000 pages@5% coverage) replacement(7,000 pages@5% coverage)	User replace
Toer Cartridge(Cyan)	intial(1,500 pages@5% coverage) replacement(5,000 pages@5% coverage)	User replace
Toer Cartridge(Magenta)	intial(1,500 pages@5% coverage) replacement(5,000 pagse@5% coverage)	User replace
Toer Cartridge(Yellow)	intial(1,500 pages@5% coverage) replacement(5,000 pages@5% coverage)	User replace
OPC Unit	mono : 50,000 pages color : 12,500 pages	User replace
ITB Unit(T1 Roller)	mono : 50,000 pages color : 12,500 pages	User replace
Waste Toner Tank	3,000 Images	User replace
Fuser Unit	simplex : 100,000 pages duplex : 50,000 pages	Engineer
Transfer Roller(T2 Roller)	simplex : 50,000 pages duplex : 25,000 pages	Engineer

* Page: Counted value based on sides of paper printed (Duplex = 2 pages).
* Image: Counted value based on printed monochrome images.
* When printing a color section 1 page = 4 images. (i.e. each side is made up of 4 color images)

The life span of each of these parts is stored in memory. The amount of each 'life' used can be checked at any time using the control panel.
When a part is replaced it is necessary to reset the 'life used' that is stored in memory.

* How to initialize a the value of part's life span:
From the control panel, select the following items in order:
Menu-Setup - Maintenance - Check other - (Select a desired part) - Reset

6.2.2 Printer Cleaning

A printer should be regularly cleaned, especially if it is used in a dusty environment. This will ensure that print quality remains high and failure due to contamination of printing services is less likely to occur.

* Clean the printer with a soft, lint free, cloth dipped in a "Recommended cleaner" "Recommended cleaner" can be purchased from our service center. (where available)

* Do not touch the transfer roller when cleaning the inside of the printer. Grease and oils from the skin will contaminate the surface and reduce print quality.

* Do not touch transfer roller when cleaning inside of machine. If transfer roller gets dirty, printing quality could be low.

* Please refer to the User Manual for cleaning instructions.

6.3 Information Related to Disassembly and Assembly.

6.3.1 Special service parts

Never disassemble or adjust the items mentioned, a stock of these items should be maintained.

1) Disassembly of the LSU unit

There are no serviceable parts inside the LSU. Alignment of the mirrors is critical. Opening the LSU will allow dust into the laser and significantly reduce print quality. It is very dangerous to operate or service a machine with the LSU open or system interlocks disabled. Exposure to laser radiation can cause blindness.

2) Disassembly of the ITB unit

Do not disassemble the ITB. The alignment of the home sensor is critical and is set up in the factory on a special jig. Incorrect re-assembly will cause print quality degradation.

3) Care of the OPC unit

If an OPC unit is exposed to direct sunlight for a long time the parameters and response of the electrostatic surface are changed causing image transfer and print quality issues. Also there is no protective shutter on the OPC drum to prevent scratching Please take extra care to ensure the OPC drum is protected from sunlight and physical contact when servicing the machine.

4) Care of the Toner cartridge

Toner cartridges contain an extremely fine powder. Please keep toner cartridges away from children. The toner powder contained in the toner cartridge may be harmful and if swallowed you should contact a doctor. Take care not to spill toner - spillages should be cleaned with a vacume cleaner and washed in could water (hot water sets the toner). Do not touch the developer roller surface as contamination will reduce print quality. Take care not to damage the roller's surface when installing or removing a toner cartridge.

5) Disassembly of DEVE drive ass'y and the main drive ass'y

The alignment of the drive mechanism is critical and it has been set up in factory using a jig and a driving gear. It is adjusted for the best gearing alignment. If the motor is disassembled alignment would not be maintained and this could cause operational noise and image problems: image alignment and toner distribution may be affected.

6) Disassembly of terminal parts

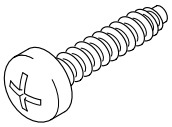
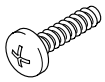
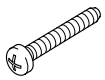
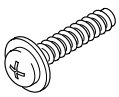
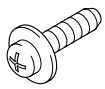
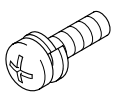
Do not adjust the variable resistors on the PBA. They have been already adjusted in the factory.

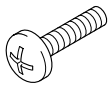
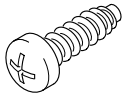
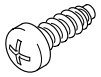
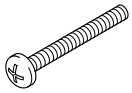
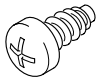
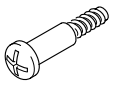
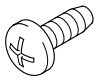
7) Disassembly of the fuser unit

- The fuser melts toner onto the paper at a high temperature: therefore, you need to take special care not to get burned by a hot fuser. When removing the fuser from a set that has recently been operating you need to take extra care.
- Do not touch an AC line (Copper contact) on a main frame even after removing the fuser.

6.3.2 Screws used in the printer

The screws listed in the table below are used in this printer. Please ensure that, when you disassemble the printer, you keep a note of which screw is used for which part and that, when reassembling the printer, the correct screws are used in the appropriate places.

NO	DESCRIPTION	SEC CODE	SPEC
S1	SCREW-MACHINE	6001-000485	2.6*4, GOLD
S2	SCREW-TAPPING	6002-000115	4*15, GOLD
			
S3	SCREW-TAPPING	6002-000175	3*8, GOLD
S4	SCREW-TAPTITE	6002-000308	2.6*6, GOLD
S5	SCREW-TAPTITE	6003-000119	3*8, BLACK
			
S6	SCREW-TAPTITE	6003-000152	2*10, GOLD
			
S7	SCREW-TAPTITE	6003-000179	3*6, GOLD
S8	SCREW-TAPTITE	6003-000196	3*10 SILVER
			
S9	SCREW-TAPTITE	6003-000266	3*6, GOLD
			
S10	SCREW-ASS'Y MACH	6006-001193	3*6, GOLD
			

NO	DESCRIPTION	SEC CODE	SPEC
S11	SCREW-TAPTITE	6003-000269	3*6, GOLD
S12	SCREW-TAPTITE	6003-001001	3*8, BLACK
S13	SCREW-MACHINE	6001-000568	3*8, SILVER
			
S14	SCREW-TAPTITE	6003-001256	4*10 SILVER
			
S15	SCREW-TAPTITE	6003-000261	3*6, GOLD
			
S16	SCREW-MACHINE	6003-001068	2*16, BLACK
			
S17	SCREW-TAPTITE	6003-000301	4*6, GOLD
			
S18	SCREW-SPICIAL	6009-001396	3*10, BLACK
			
S19	SCREW-TAPTITE	6003-000008	4*6, SILVER
			

6.3.3 Opening Covers and replacing Consumable parts

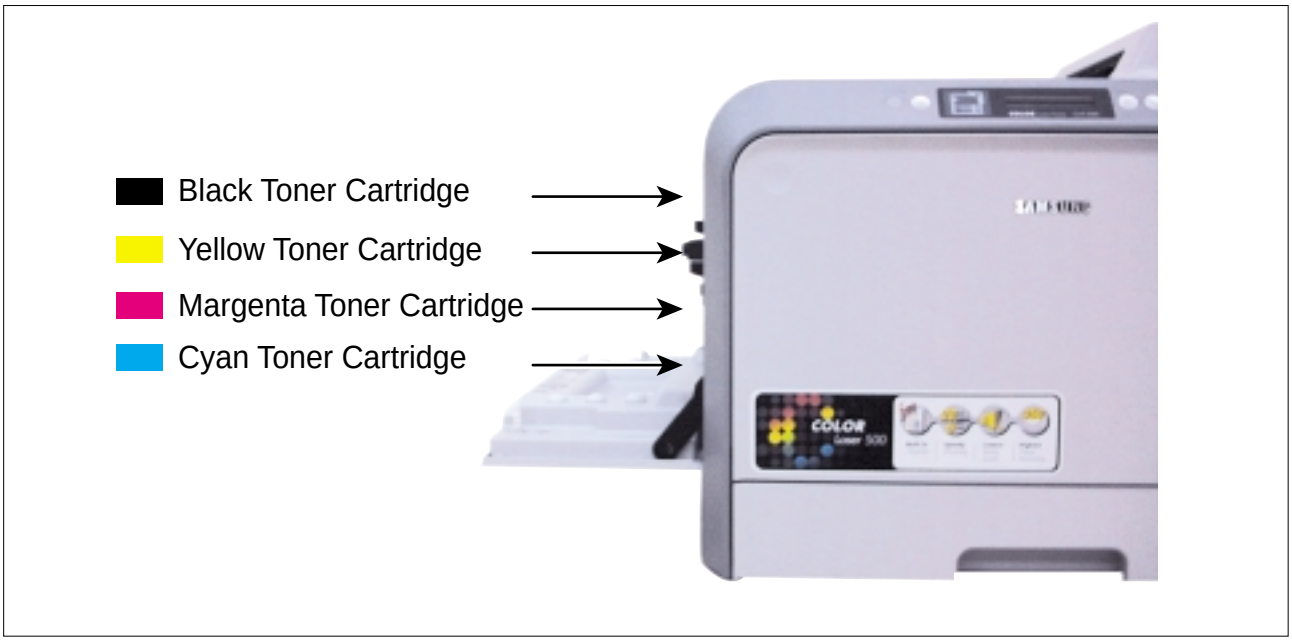
This section shows you how to open the covers (front cover, DEVE cover, exit cover, and duplex cover) and how to remove and replace the consumable parts (toner cartridge, ITB unit, and OPC drum).

>> Consumable parts removal

1) Pull the side handle to open the DEVE cover and then press down firmly until the toner cartridges are ejected.

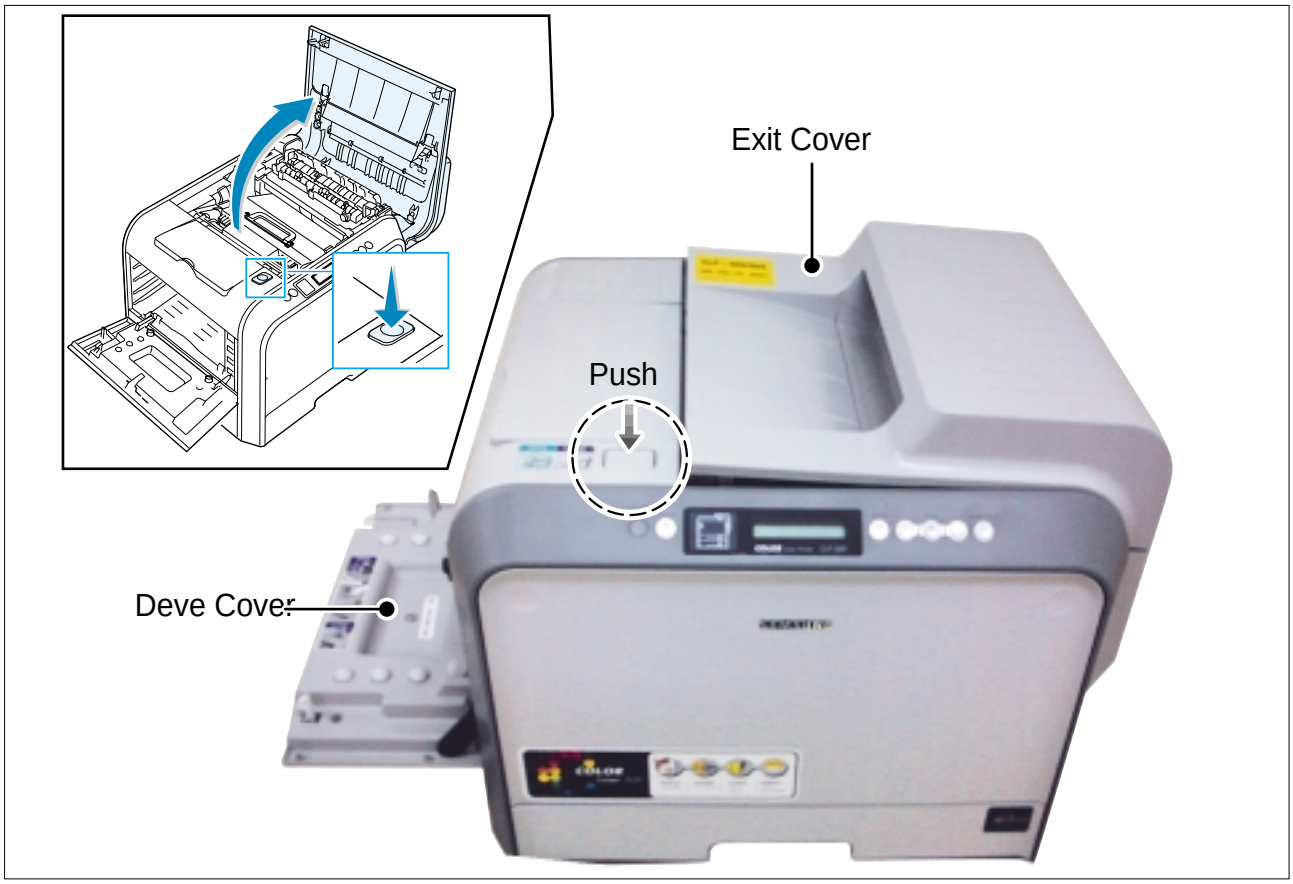
Caution: *Before opening the exit cover, completely open the DEVE cover (eject the toner cartridges)*

2) Removing a toner cartridge (K, Y, M, and C)



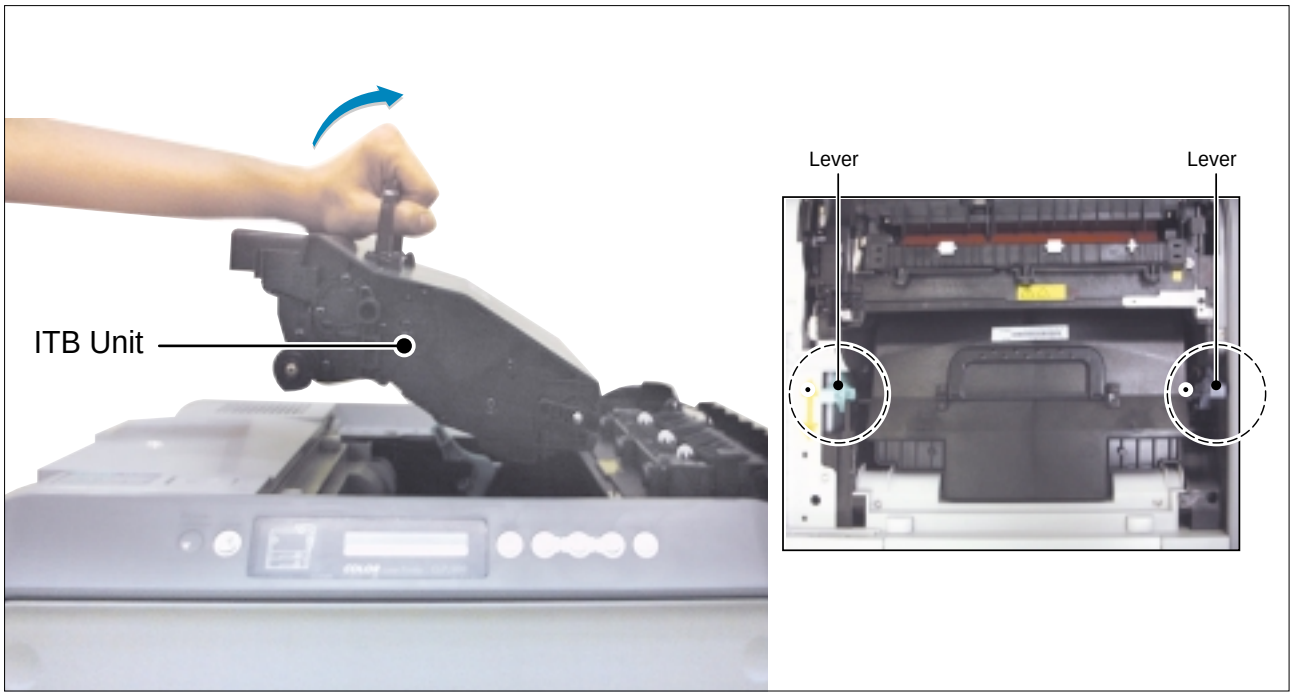
Caution: * *Take care not to damage the rollers.*
* *Keep the toner cartridge on a flat surface.*

3) Open the exit cover by pressing the cover open button.

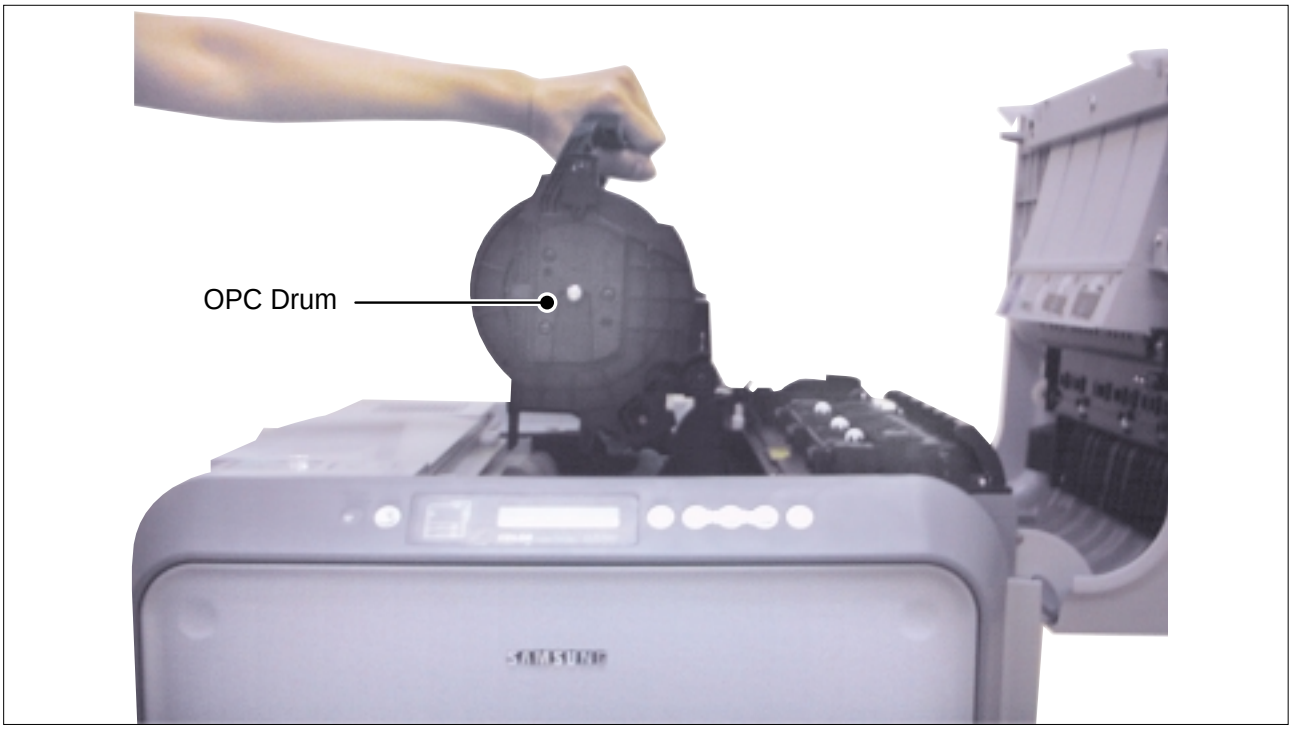


Caution: *Before opening the exit over completely open the DEVE cover until it is at right angles to the main frame and the toner cartridges are ejected*

4) Remove the ITB unit by releasing the ITB lock levers on both sides of the unit.



5) Remove the OPC drum by carefully lifting the unit using the handle provided. Take care to ensure that the OPC drum surface is not scratched or damaged. Do not touch the surface of the drum when lifting the drum handle or when removing the drum.



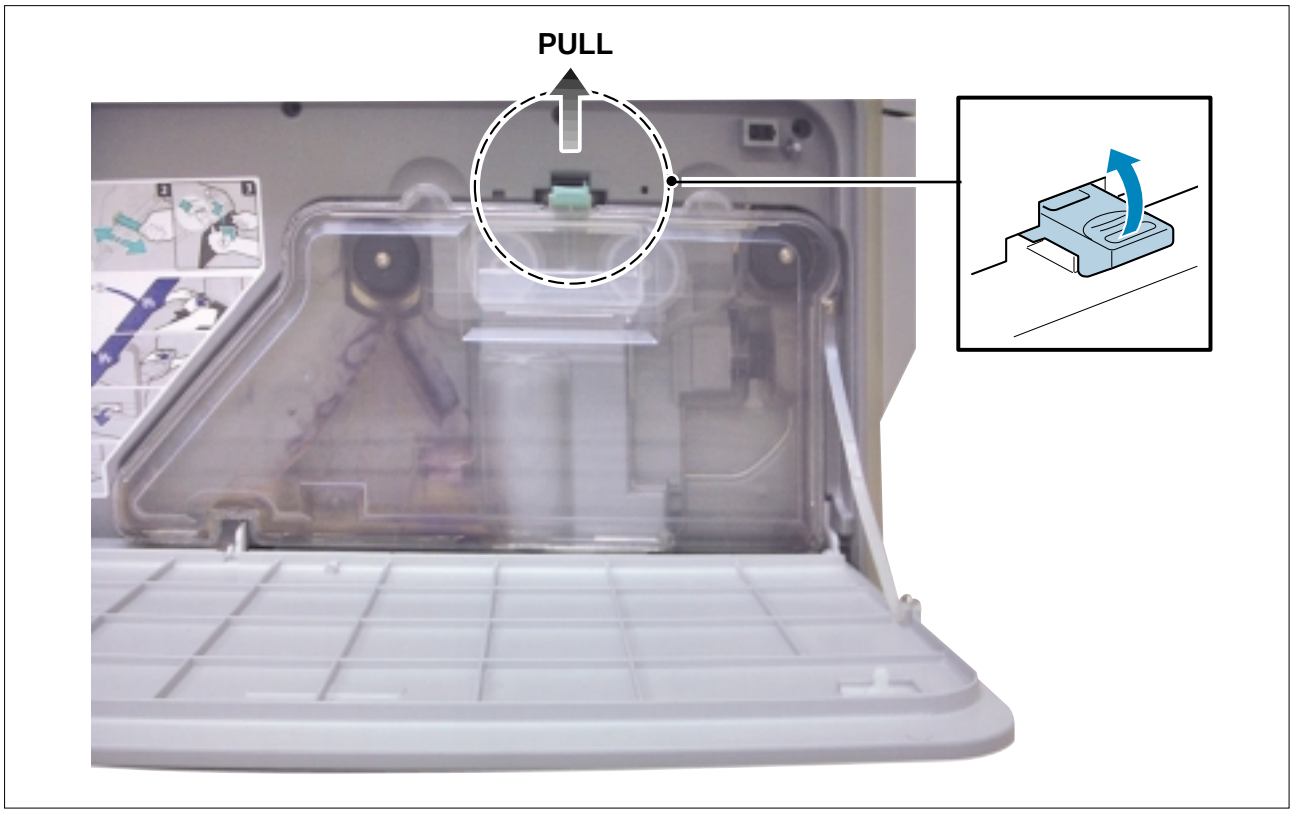
Caution: The surface of the OPC drum could be damaged if the OPC drum is exposed to direct sunlight for more than 5 minutes.

6.3.4 Replacing the Waste Toner Tank

>> Removing the waste toner tank

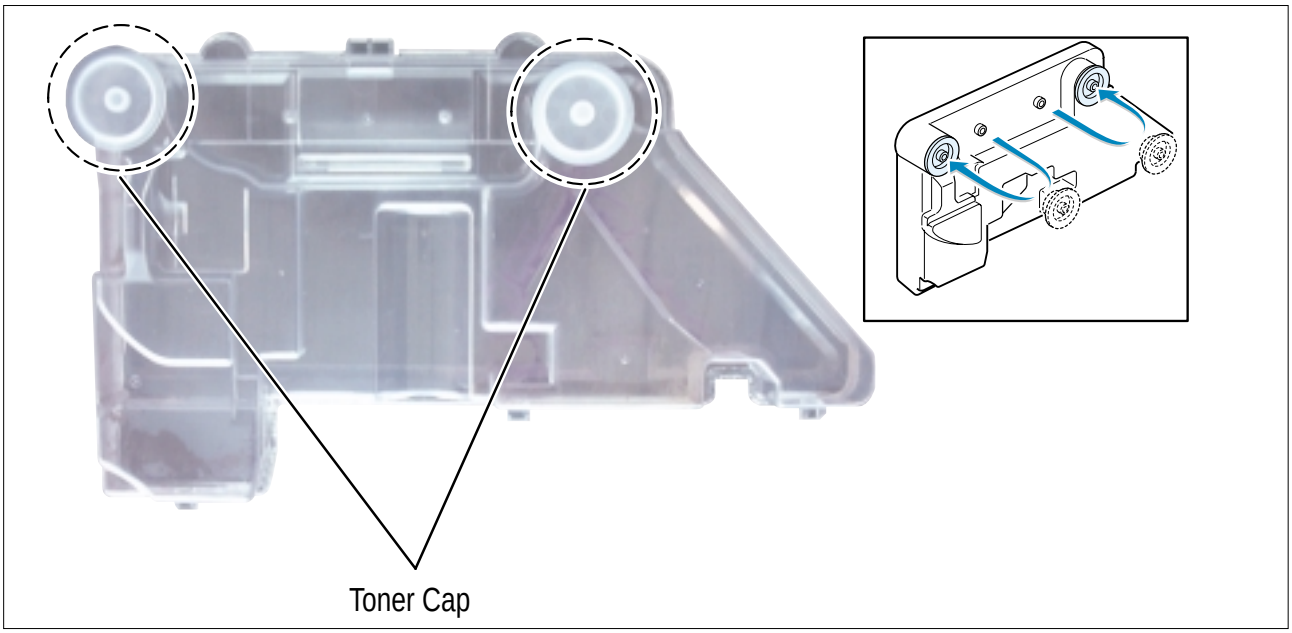
1) Push the top corners of the front cover to release the cover catches.

2) Lift the hook at the top of the waste toner tank and gently pull the top edge of the waste tank forward. Lift the tank out.



Caution: *Be careful not to let toner spill from the waste toner tank.*

3) Remove the Toner Caps from the side of the tank and fit them to the tank inlets as shown below



4) Fit a new waste toner tank.

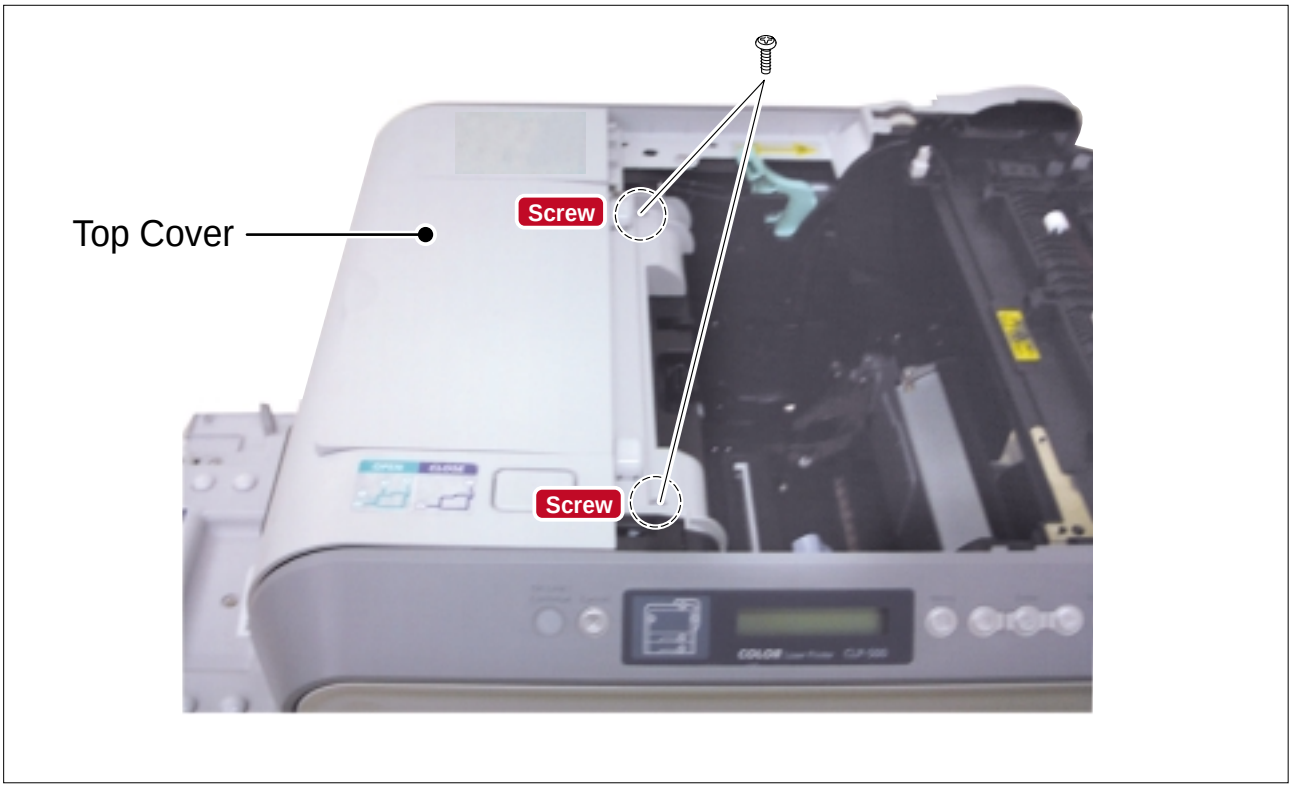
6.4 Disassembly Procedure

6.4.1 Top cover and Front cover

1) Remove the cassette.

2) Open all of the covers in the following order:- Duplex cover - DEVE cover - Exit cover (Refer to 6.3.3)

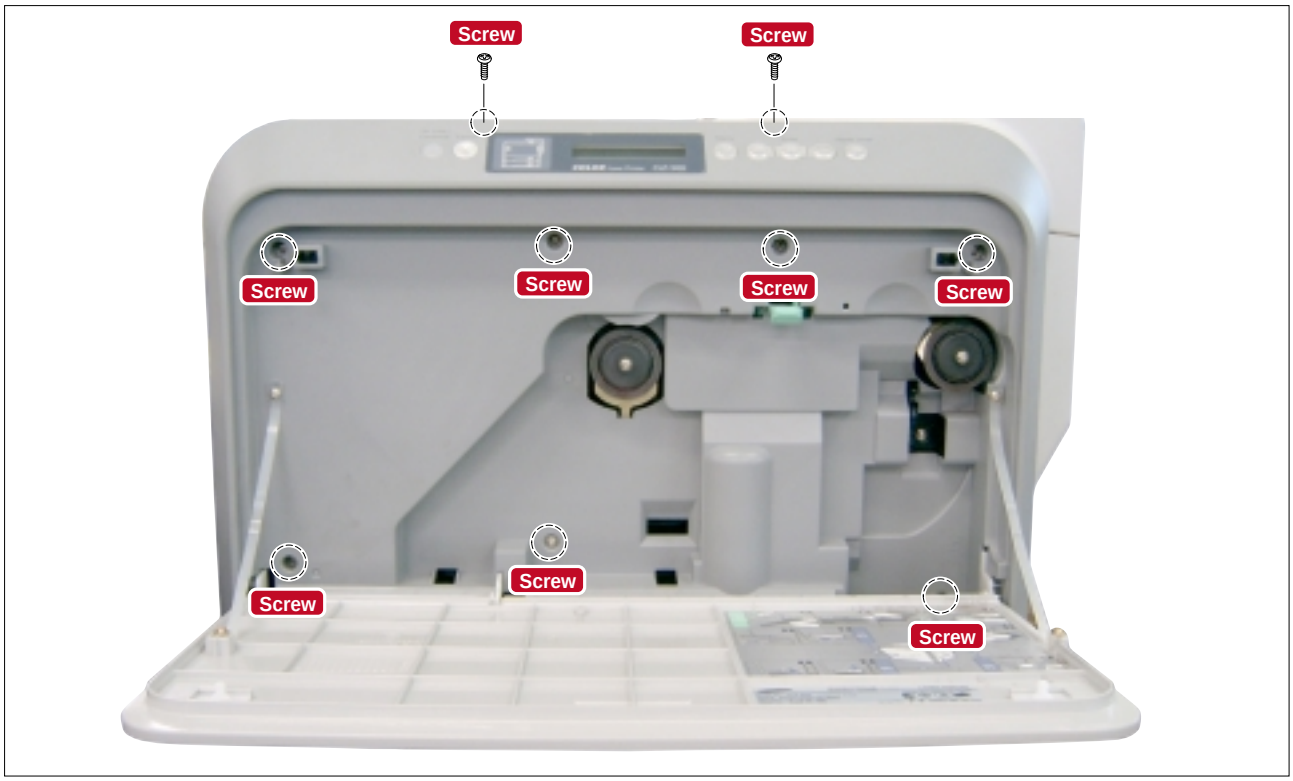
3) Release 2 screws (3*10 silver).



4) Take out the Top Cover as shown below.

5) Push both of the top corners to release the catches and open the front cover and then remove the waste toner tank. (Refer to 6.3.4)

6) Release 7 screws (3*10 silver) located inside the front cover.
Release 2 screws (3*10 silver) located on the top of the front cover.



7) Release 2 hooks on the right and the left side with a flat bladed screwdriver and then remove the front cover. Take care to disconnect one harness connected to the frame.

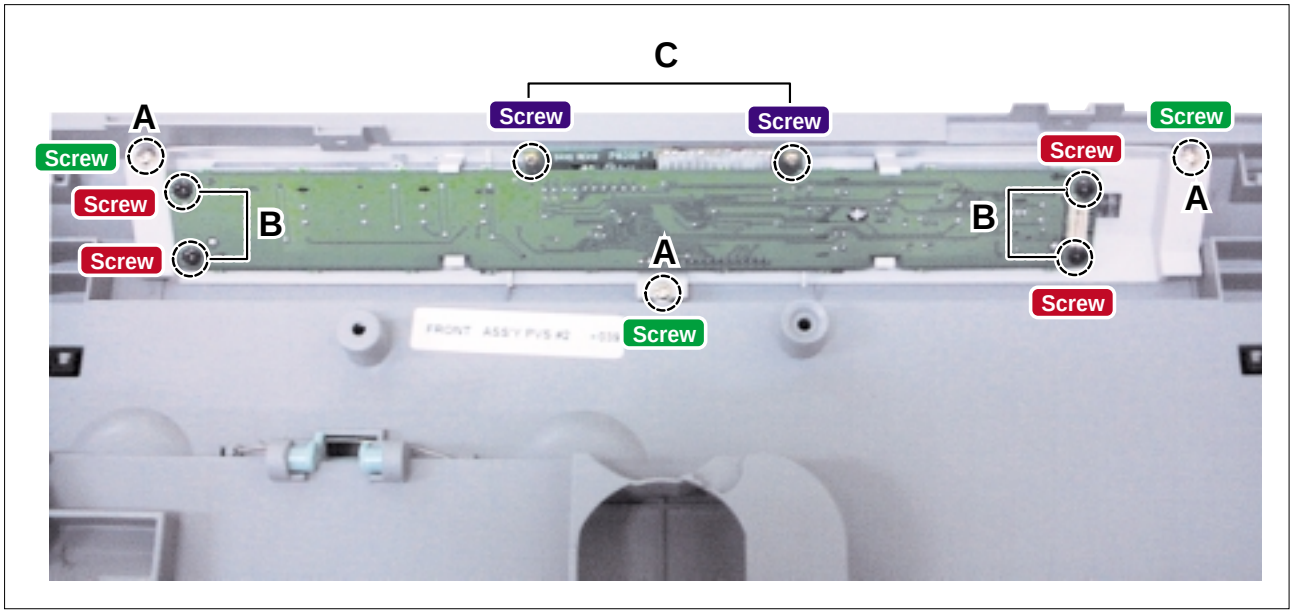
6.4.2 OP Panel Ass'y

>> Before disassembling it: Remove the front cover. (Refer to 6.4.1)

1) Release 3 screws ('A' below 3*8 black) and take out the OP panel ass'y.

2) Release 4 screws ('B' below 3*8 black) from the Panel PBA and remove the panel PBA.

3) Release 2 screws ('C' below 3*6 gold) from the LCD and then take out the LCD.



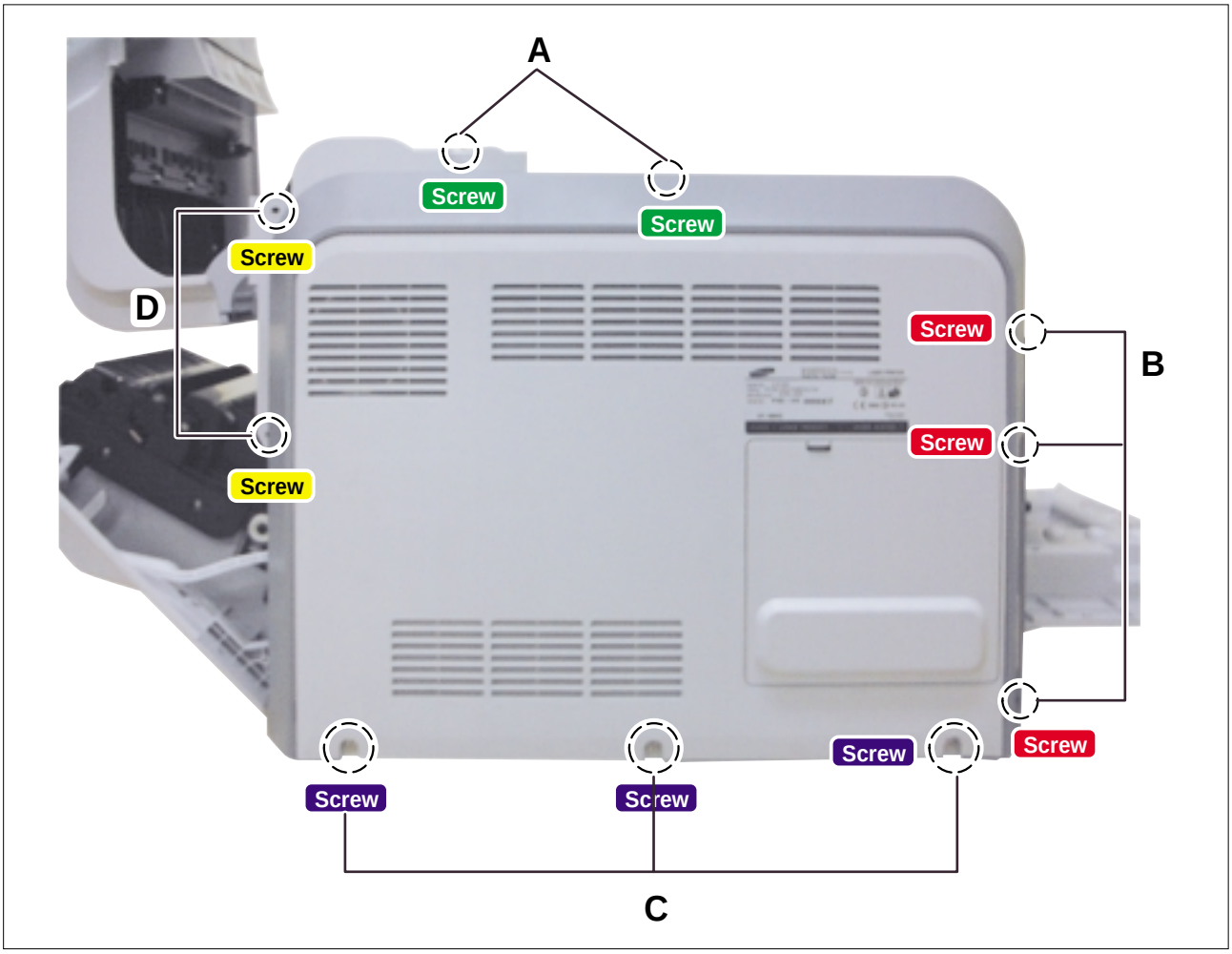
- **A : OP Panel Screw, 3 * 8 Black**
- **B : Panel PBA Screw, 3 * 8 Black**
- **C : LCD Screw, 3 * 6 Yellow**

6.4.3 Rear Cover

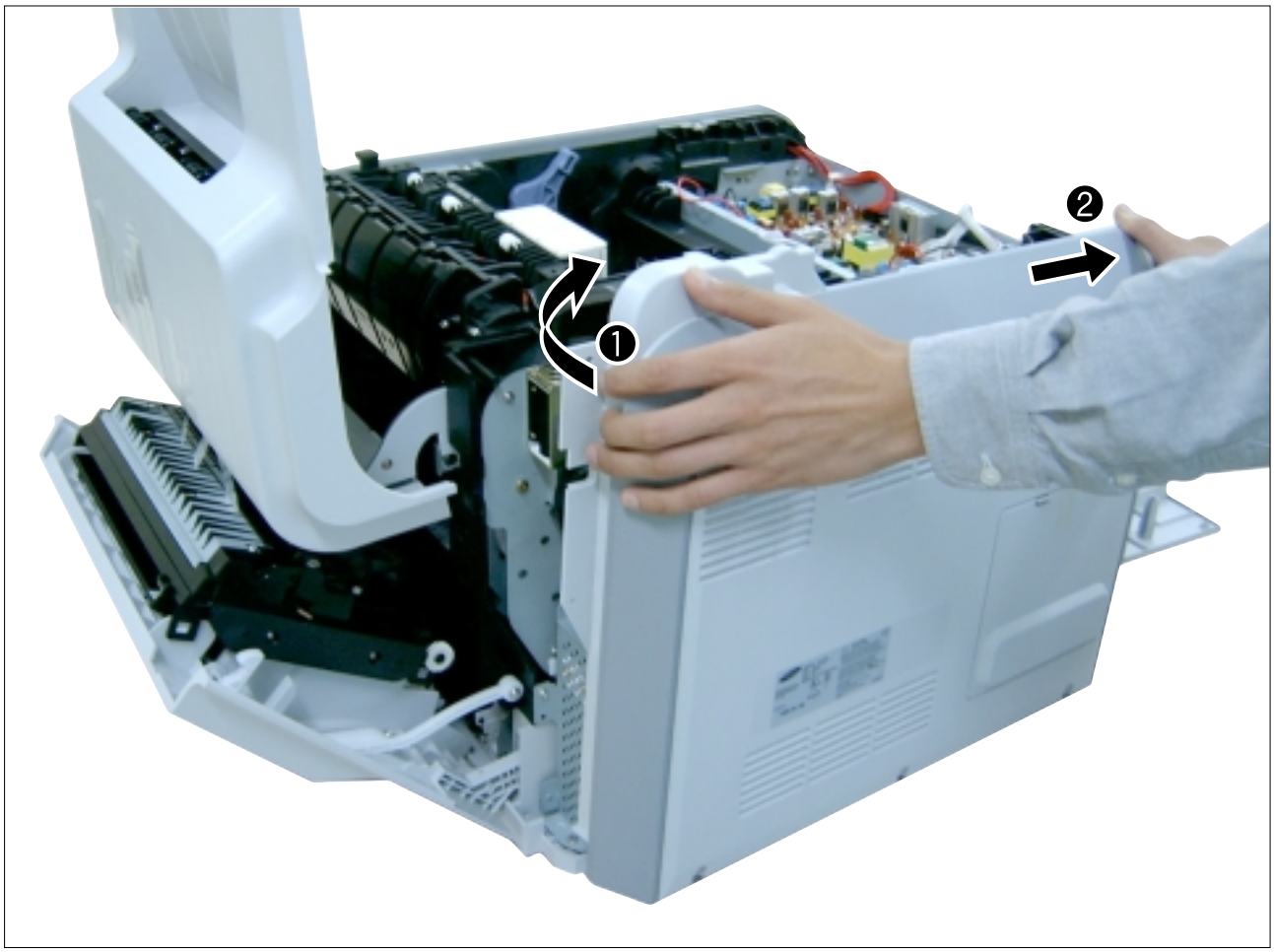
>> Before disassembling it:

*Open the **duplex cover, the DEVE cover** and the **exit cover**. (Refer to 6.3.3)
Remove the **top cover**. (Refer to 6.4.1)

1) 1) Remove 10 screws.
A: Top 2 EA (3 * 10 Silver)
B: Side 3 EA (3 * 10 Silver)
C: Bottom 3 EA (4 * 10 Silver)
D: Rear 2 EA (3 * 10 Silver)



2) Take out the Rear Cover as shown below.

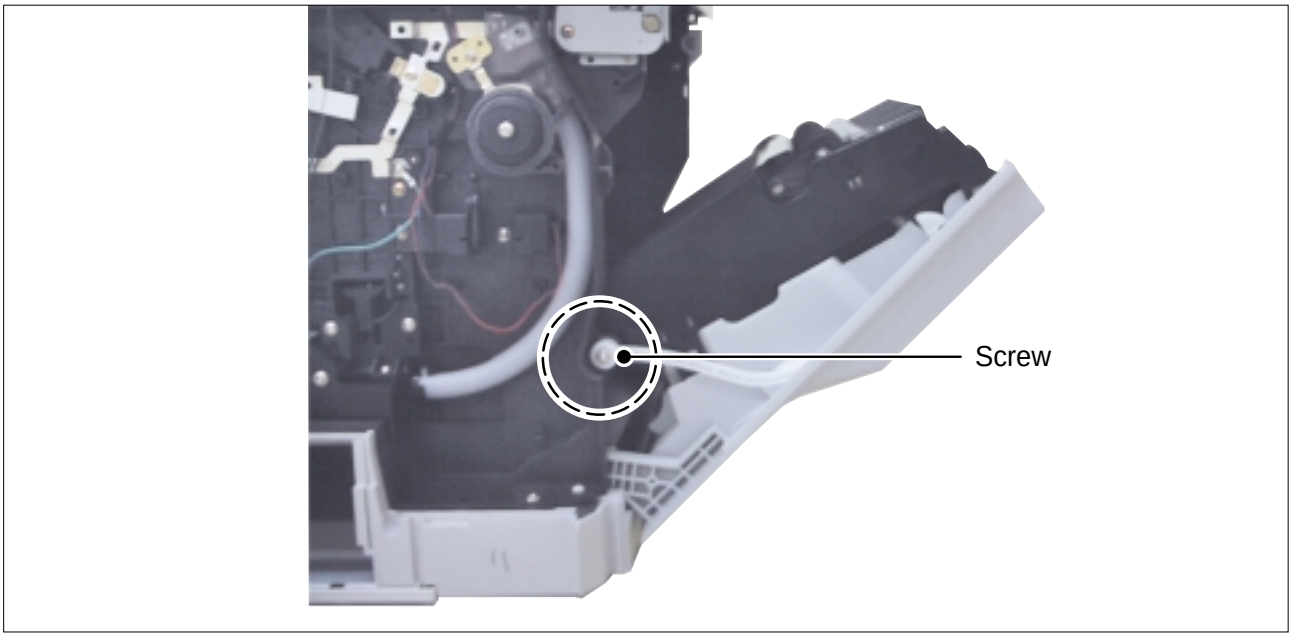


6.4.4 Duplex Cover Ass'y and Transfer Roller (T2)

>> Before disassembling it:

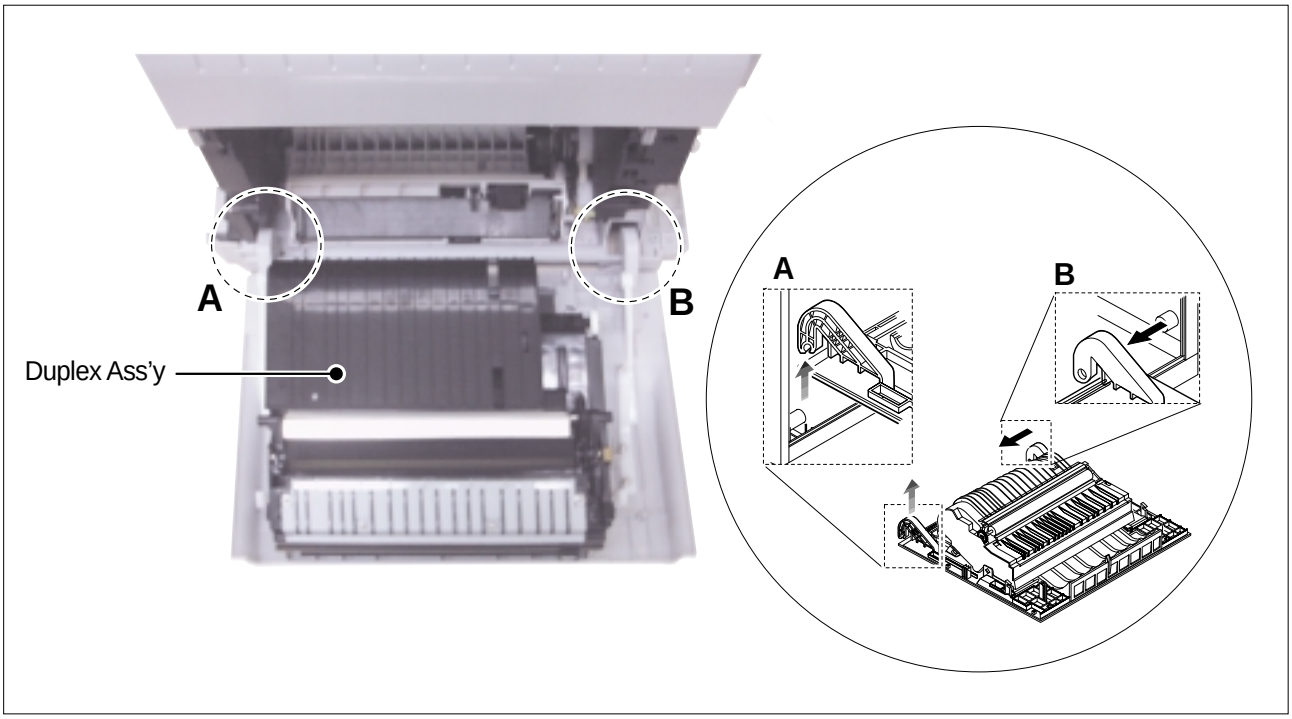
* Open the duplex cover, the DEVE cover and the exit cover. (Refer to 6.3.3)
* Remove the front cover and top cover. (Refer to 6.4.1)
* Remove the rear cover. (Refer to 6.4.3)1)

1) Release 2 hinge screws (3*10 silver) - one on each side of the duplex unit.

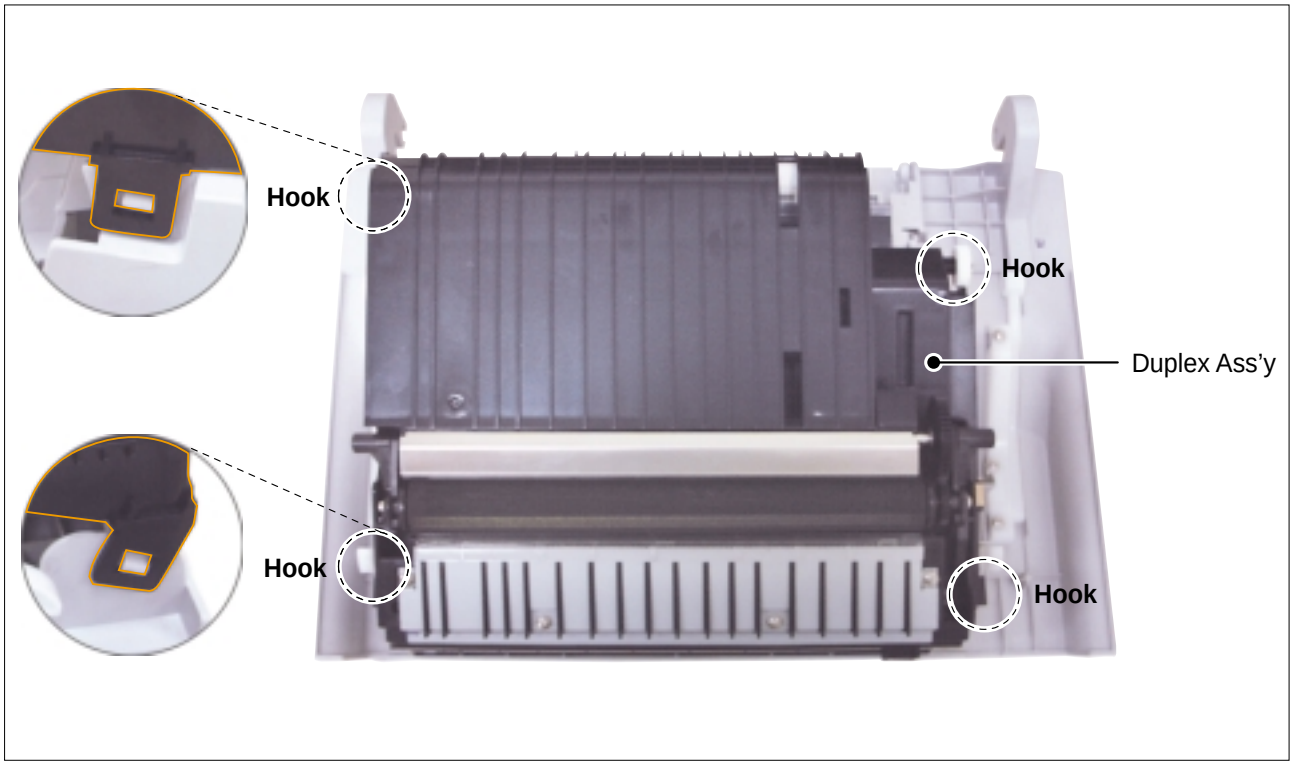


2) Remove the duplex cover ass'y by pulling it in the direction shown by the arrows in A and B below.

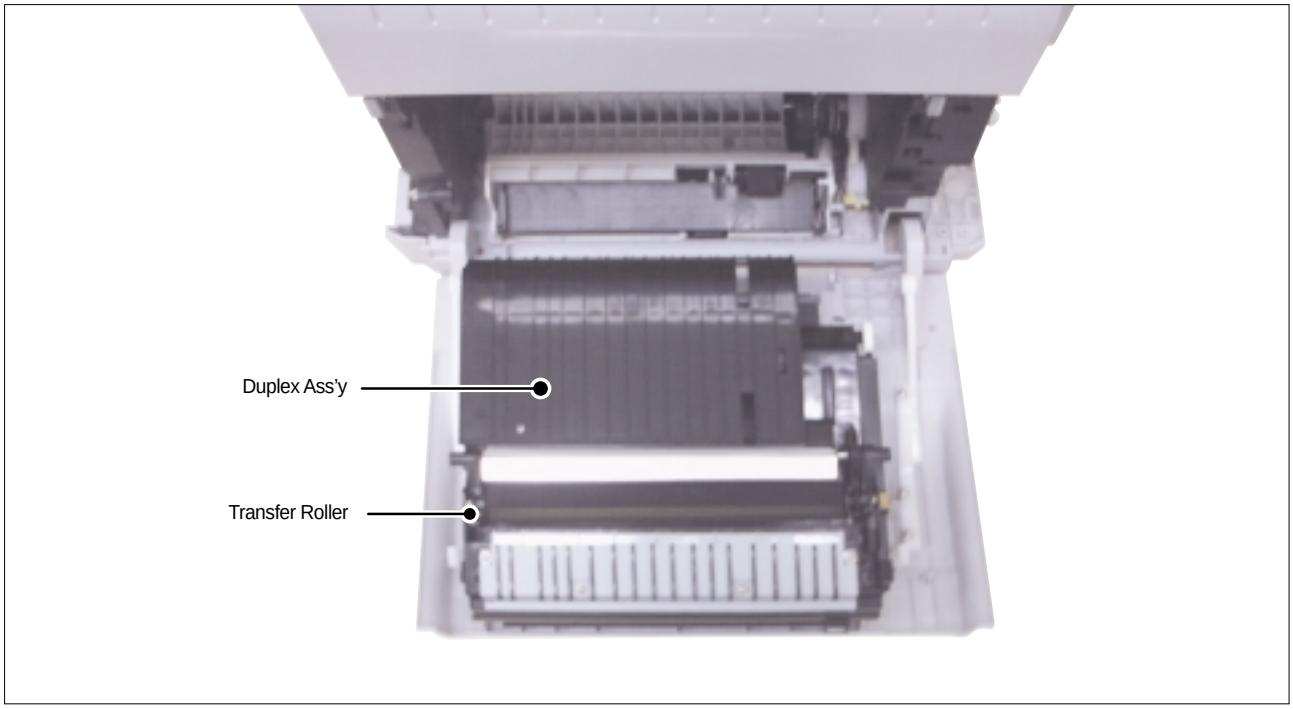
* A: Lift up the left side section.
* B: Remove the duplex cover ass'y by pulling the right side section towards the left.



3) Release 4 hooks on the right and left side with a flat bladed screwdriver and then remove the duplex ass'y.



4) Remove the transfer roller by turning the bush on each end of the roller

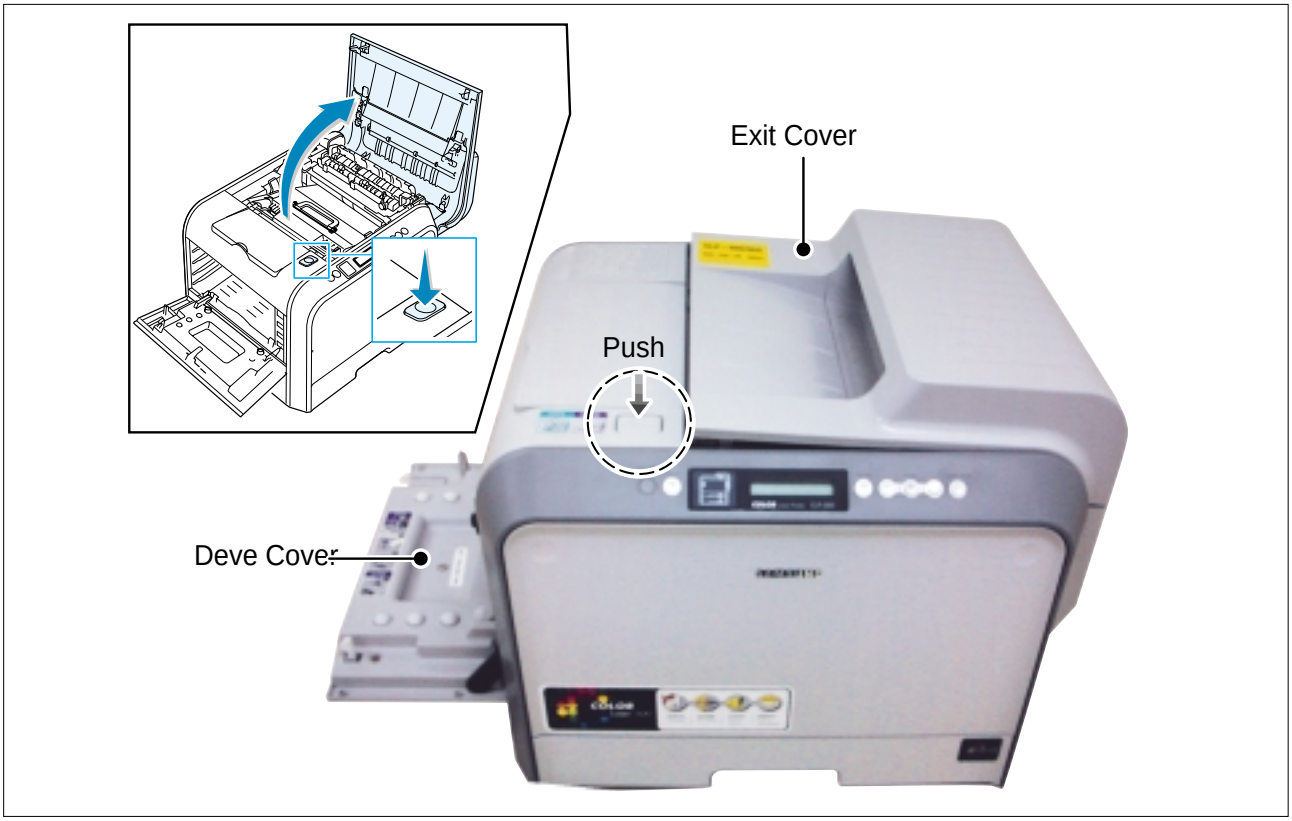


6.4.5 Fuser

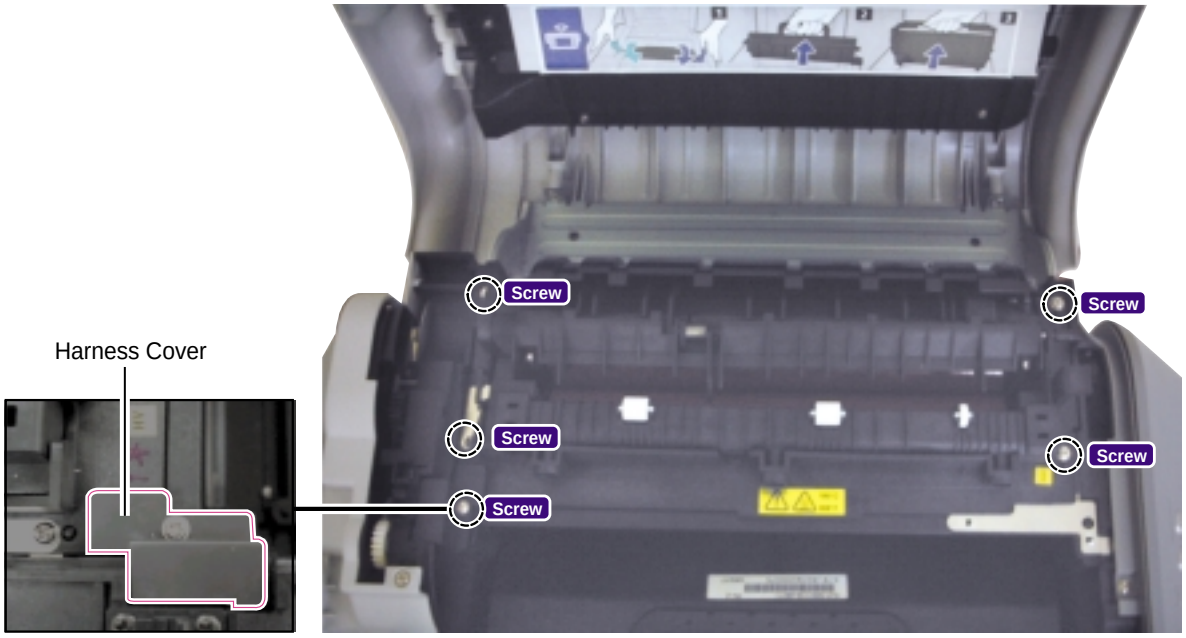
1) Open the DEVE cover

Caution: Before opening the exit cover, completely open the DEVE cover until it is at right angles to the main frame and the toner cartridges are ejected

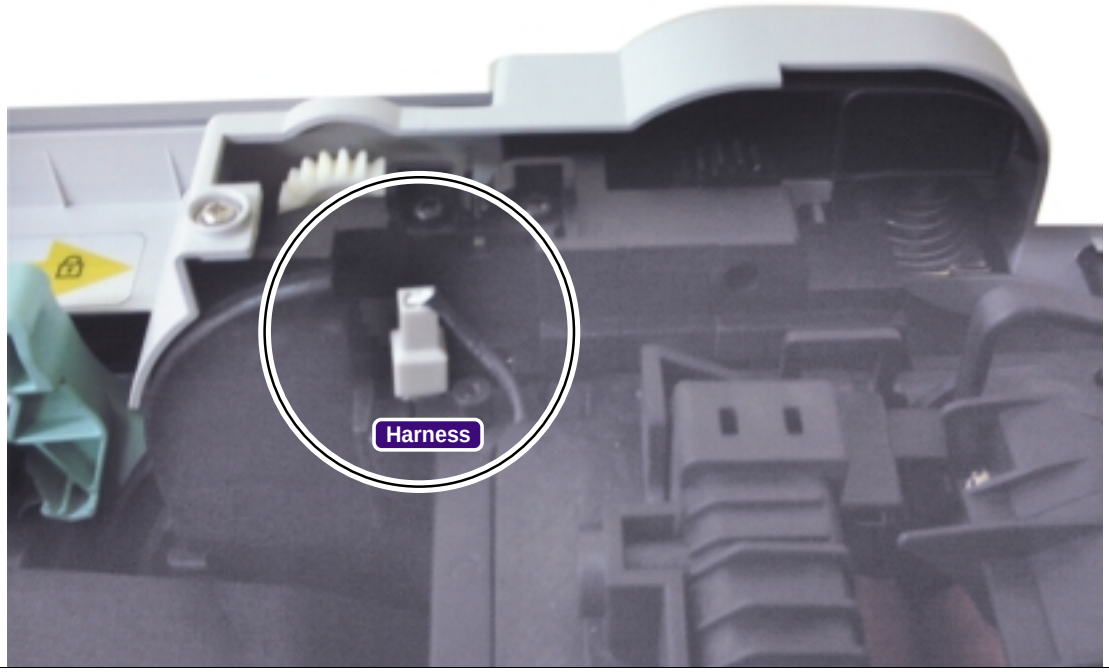
2) Open the exit cover.



3) Release 5 screws (3*10 silver) and then remove the harness cover.



4) Remove one harness.



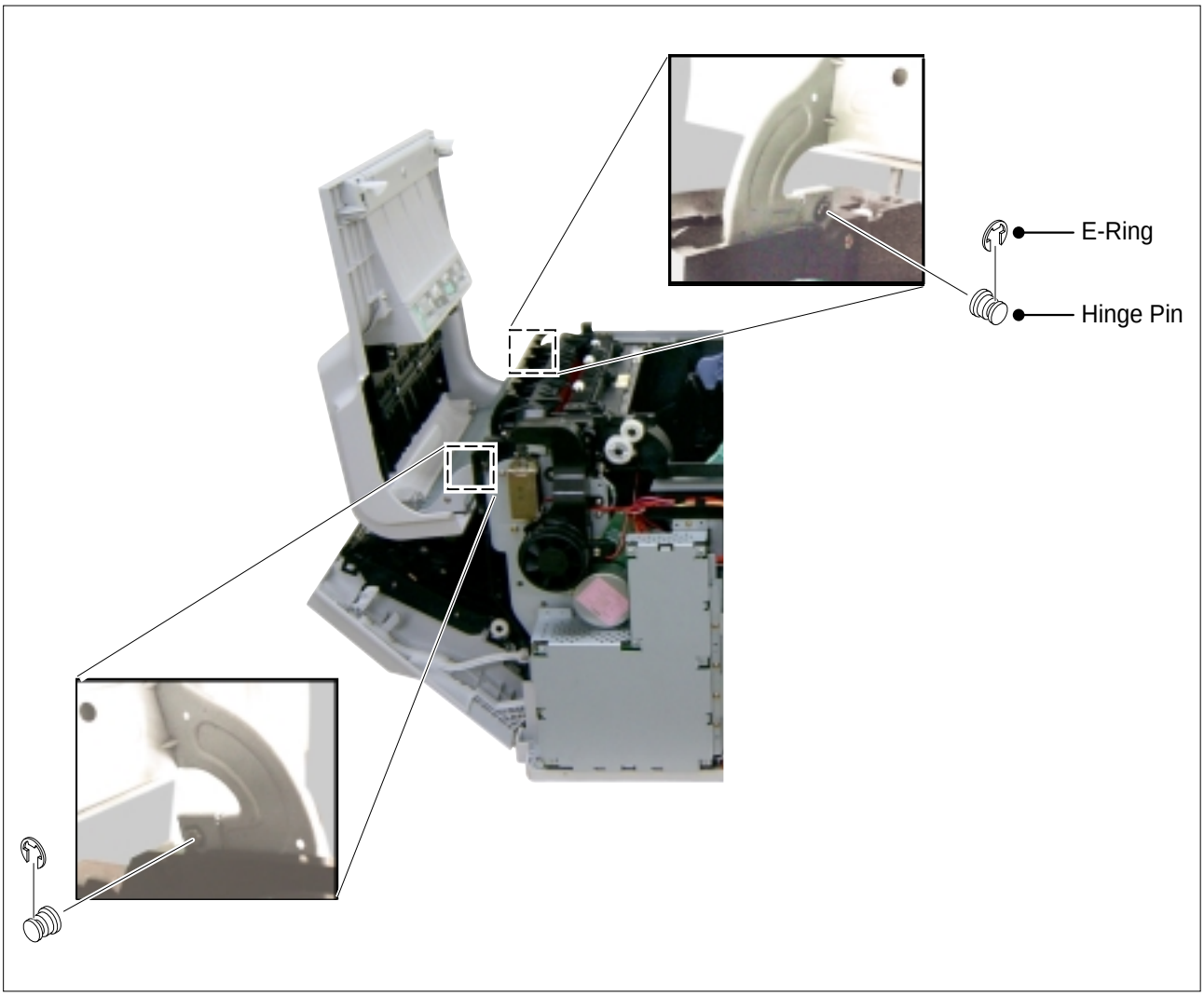
5) Remove the fuser by holding both sides of the fuser and then pulling the fuser upwards.

6.4.6 Exit Cover

>> Before disassembling it:

* Remove the **front cover** (Refer to 6.4.1)
* remove the **rear cover** (Refer to 6.4.3)
* remove the **duplex cover** (Refer to 6.4.4.)

1) Remove the E-ring and the hinge pin by using a flat bladed screwdriver.



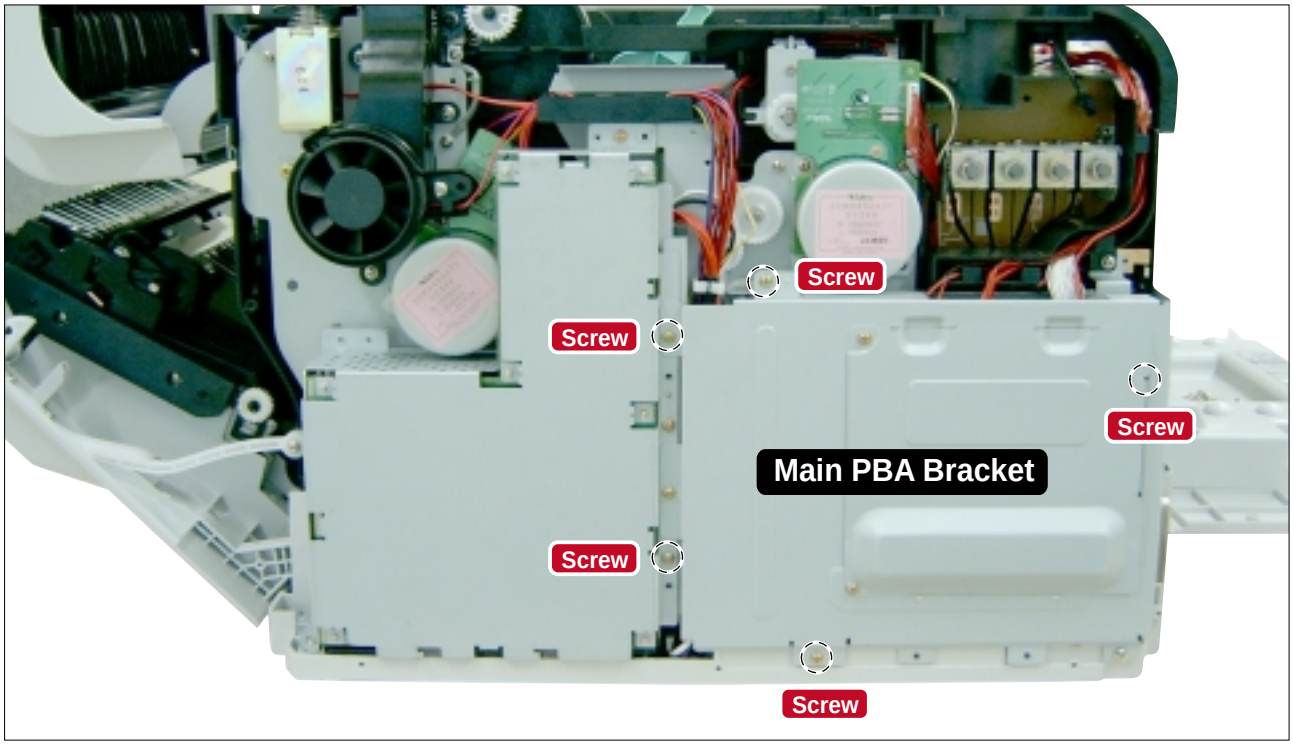
2) Remove the exit cover.

6.4.7 SMPS and Main PBA

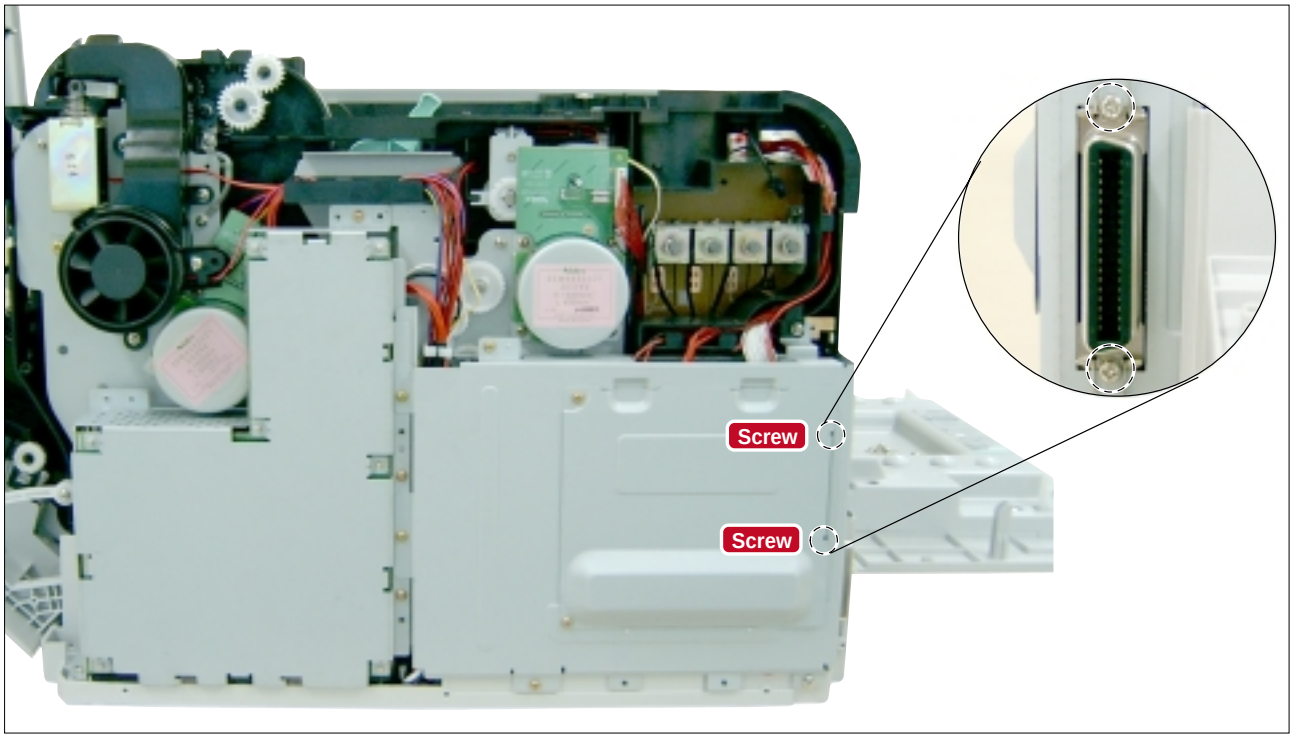
>> Before disassembling it

*Remove the **rear cover** (Refer to 6.4.3)

1) Release 5 screws (3*6 machine screw, gold) from the main PBA bracket.

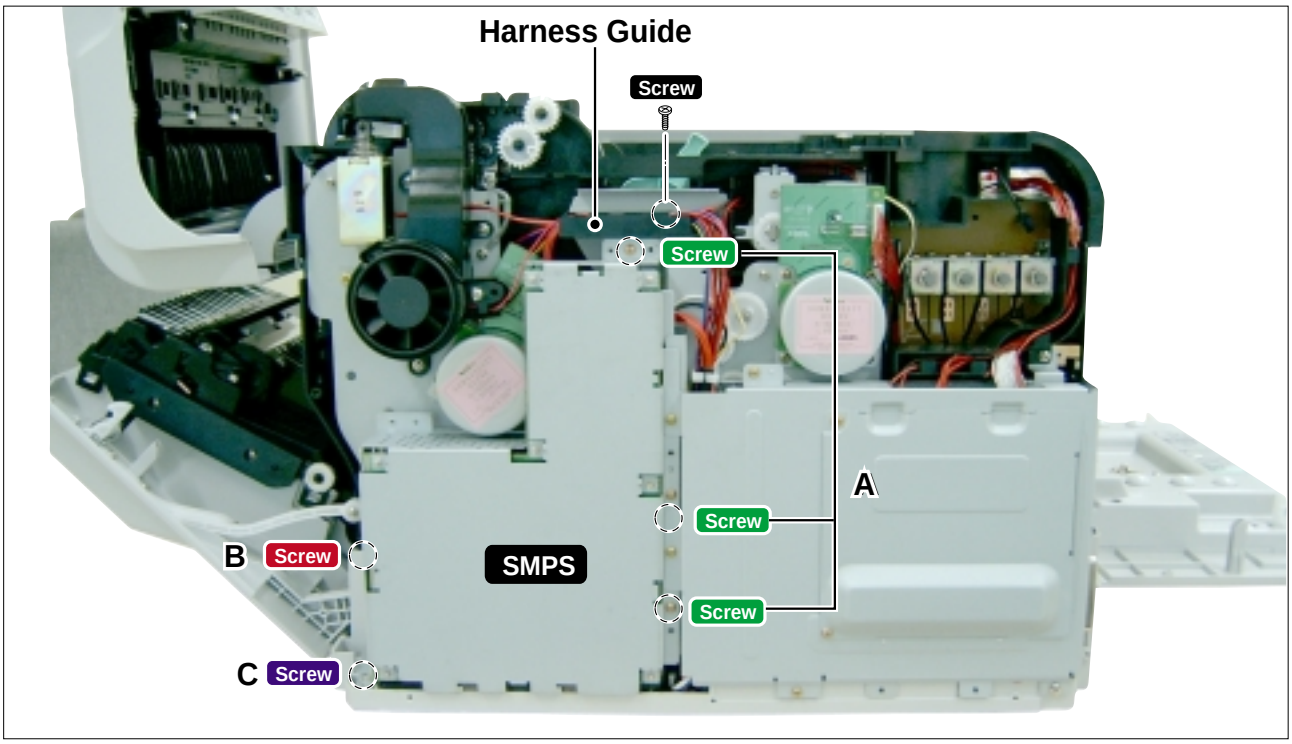


2) Release 2 screws (3*10 machine screw, silver) connected to the main PBA parallel port and then remove the main PBA bracket

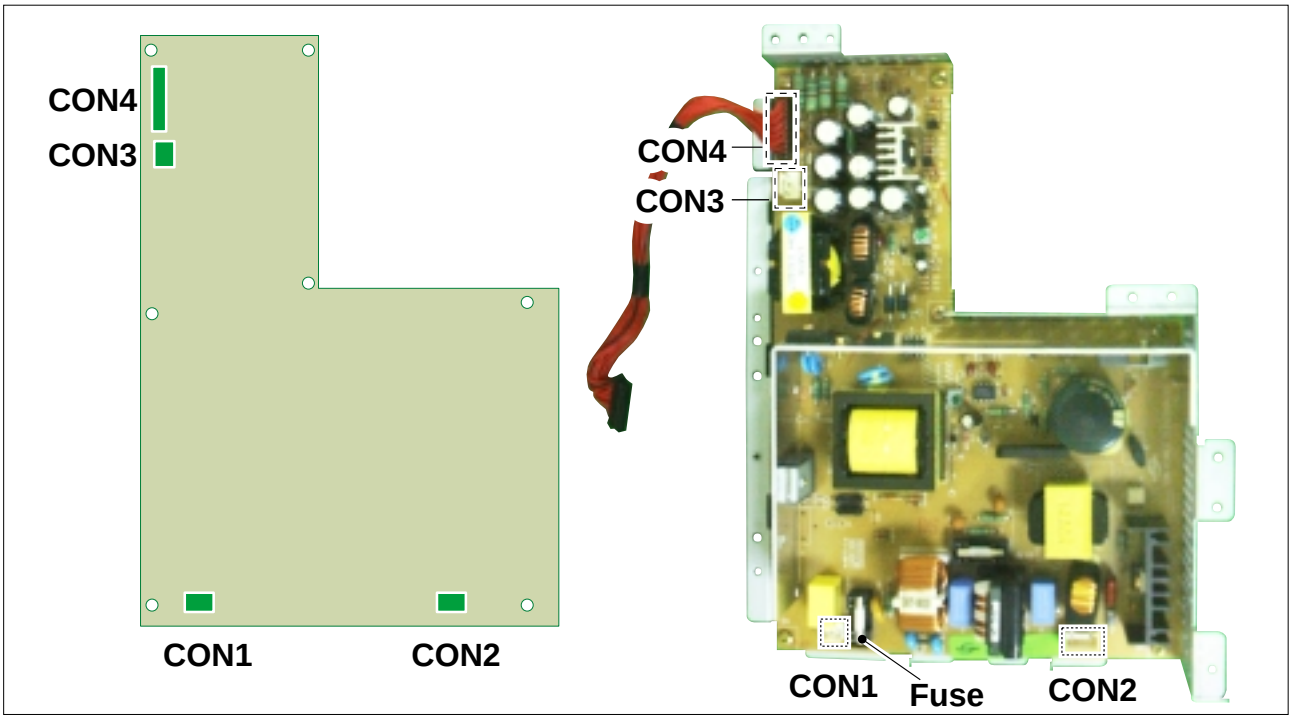


3) Release 5 screws from the SMPS.
Release one screw (3*10 silver) from the harness guide.

- **A: Right side 3EA (3 * 6 Gold)**
- **B: Left side 1EA (3 * 10 Silver)**
- **C: Bottom 1EA (4 * 10 Silver)**

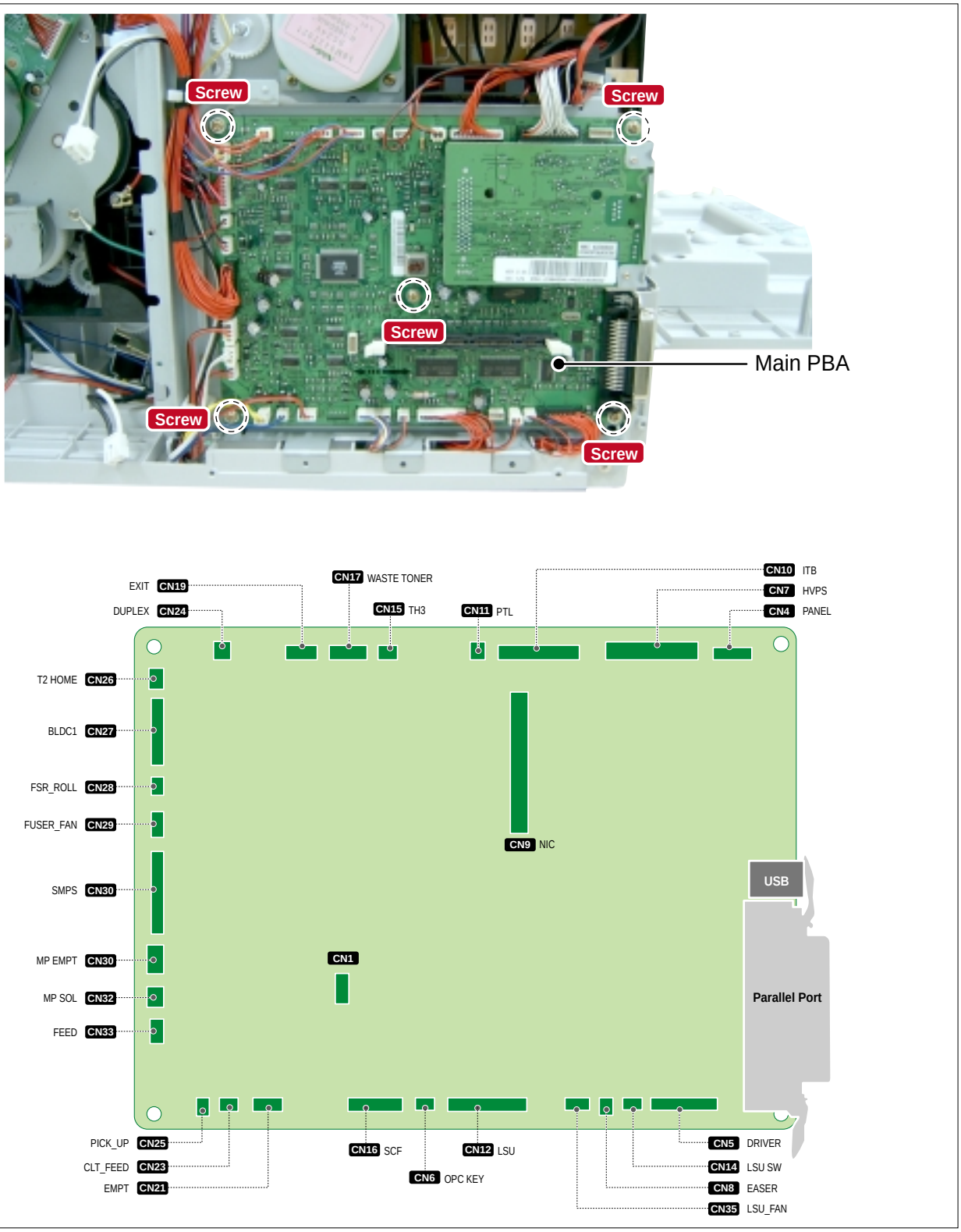


4) Remove 4 harnesses from the SMPS.



5) Remove all harness connected to the main PBA.

6) Release 5 screws (3*6 machine screw, gold) from the main PBA and then remove the main PBA.

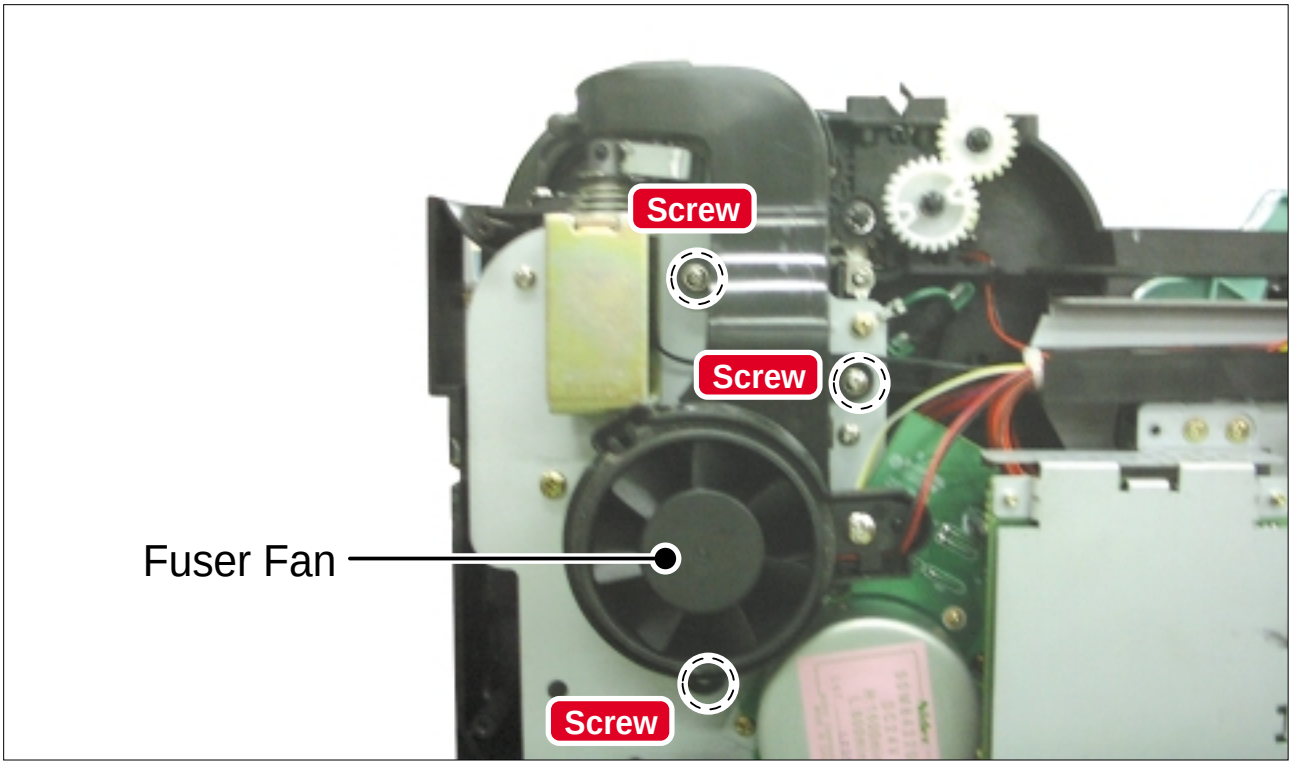


6.4.8 Fuser Fan

>> Before disassembling it:

* Remove the **top cover** (Refer to 6.4.1)
* Remove the **rear cover** (Refer to 6.4.3)
* Remove the **main PBA bracket.** (Refer to 6.4.7)

1) Release 3 screws (3*10 silver) remove one harness from the main PBA and then take out the fuser fan.



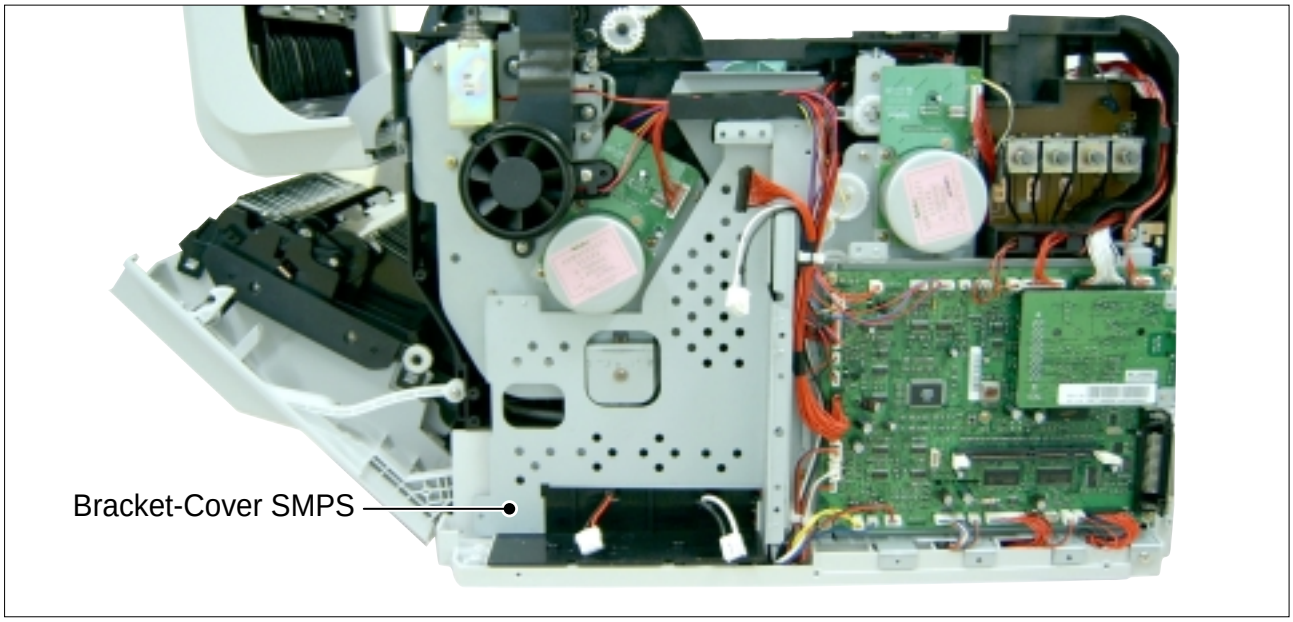
6.4.9 Main Drive Ass'y

>>Before disassembling it:

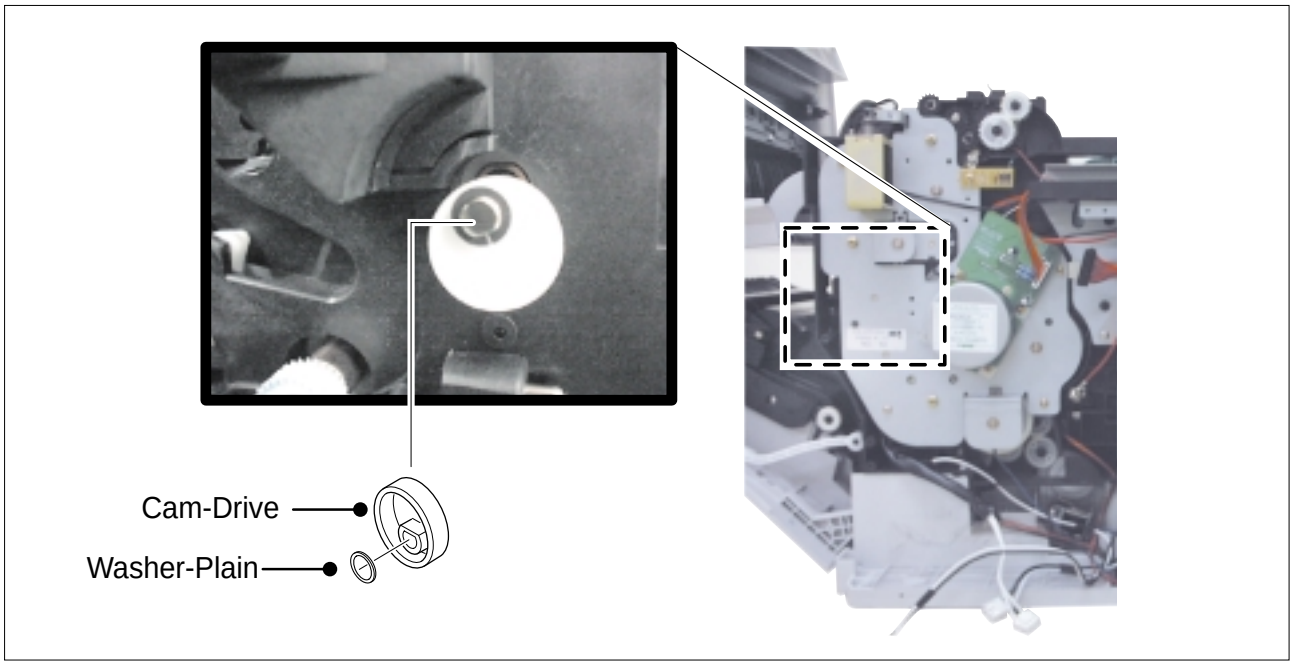
* Remove the **rear cover** (Refer to 6.4.3)
* Remove the **fuser** (Refer to 6.4.5)
* Remove the **SMPS** (Refer to 6.4.7)
* Remove the **fuser fan** (Refer to 6.4.8)

1) Remove all harnesses from the harness guides.

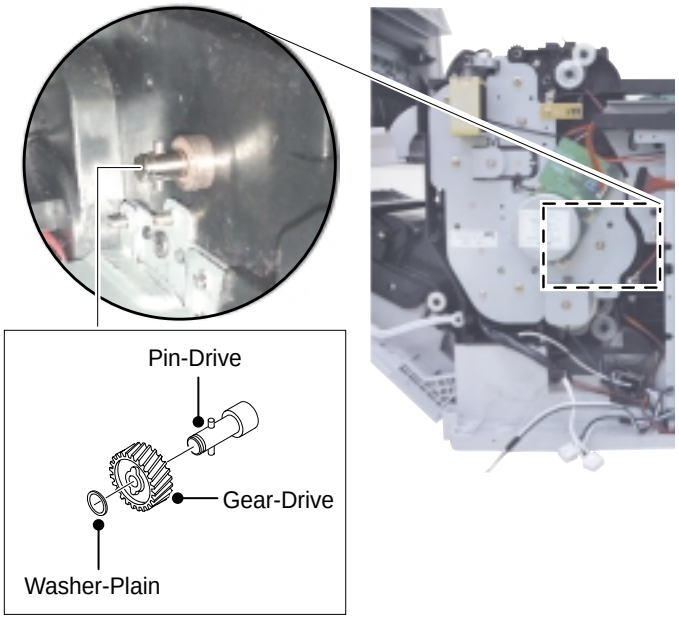
2) Remove the SMPS cover bracket.



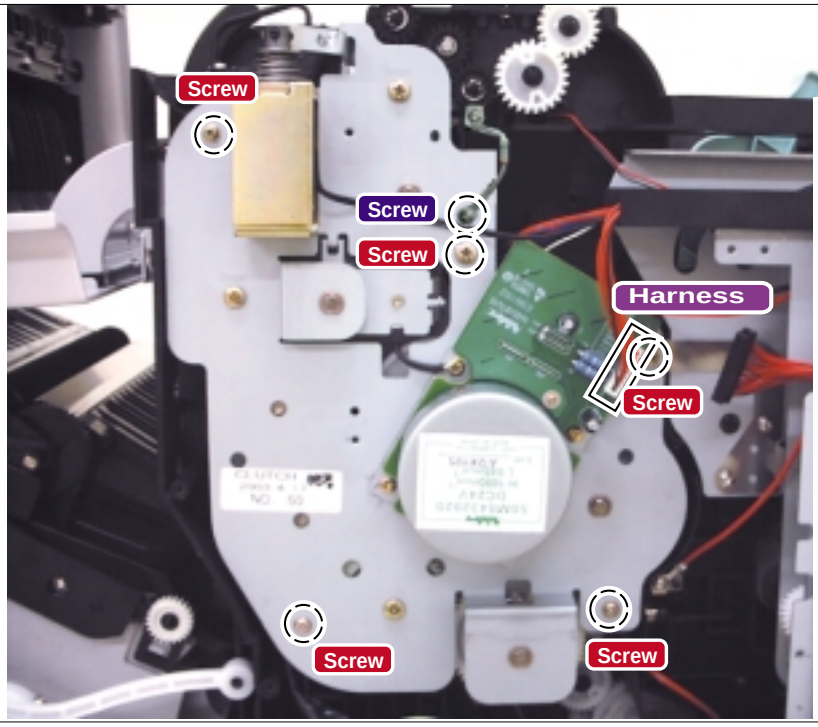
3) Look inside the OPC drum cavity and locate the T2 cam. Remove the washer using tweezers and then remove the T2 cam.



4) Remove the washer using tweezers and then remove the OPC gear and pin. (The OPC gear can be found inside the printer after removing the OPC drum unit. Take care that the pin is not lost as you remove the gear.)



5) Remove the 3 harnesses Motor, Duplex solenoid and Feed Regi Clutch
Release 6 screws (3*10 silver) and then take out the main drive ass'y.

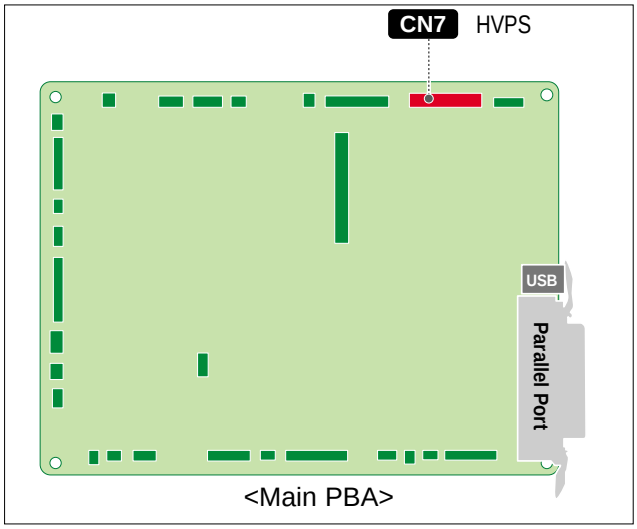


6.4.10 HVPS (High Voltage Power Supply)

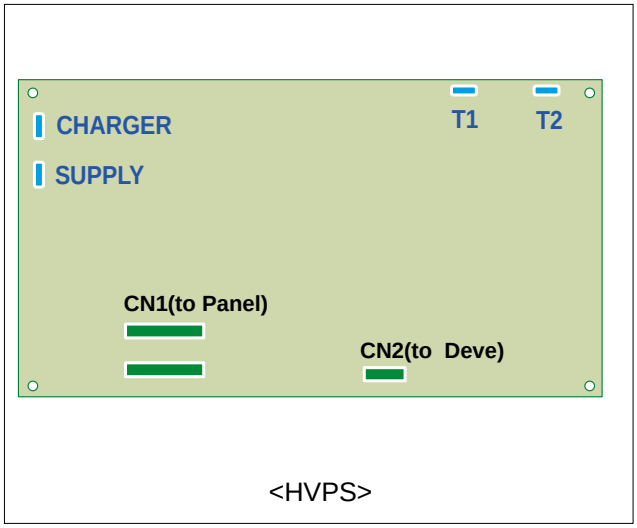
>>Before disassembling it:

* Disassemble the **front cover & top cover** (Refer to 6.4.1)
* Disassemble the **rear cover** (Refer to 6.4.3)
* Disassemble the **main PBA bracket** (Refer to 6.4.7.)

1) Remove one harness from the main PBA

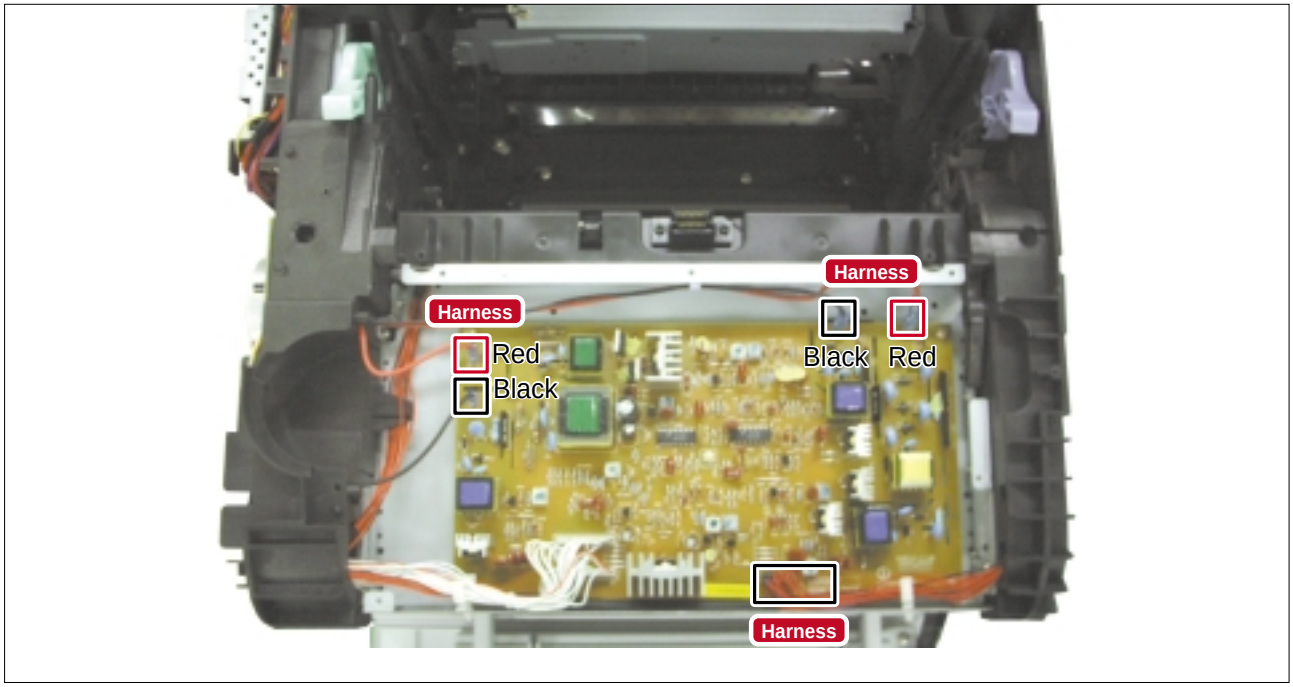


<Main PBA>

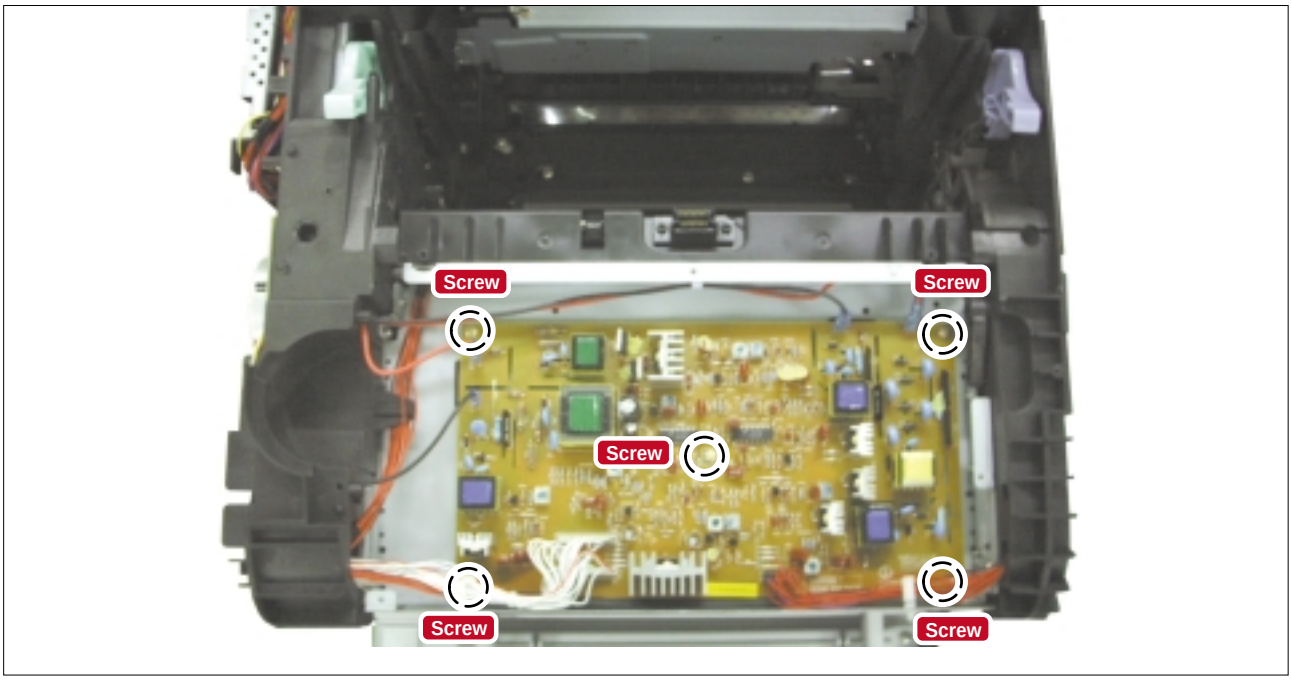


<HVPS>

2) Remove one harness and 4 high-voltage harnesses from the HVPS.



3) Remove 5 screws (3*6 machine screw, gold) and then remove the HVPS.

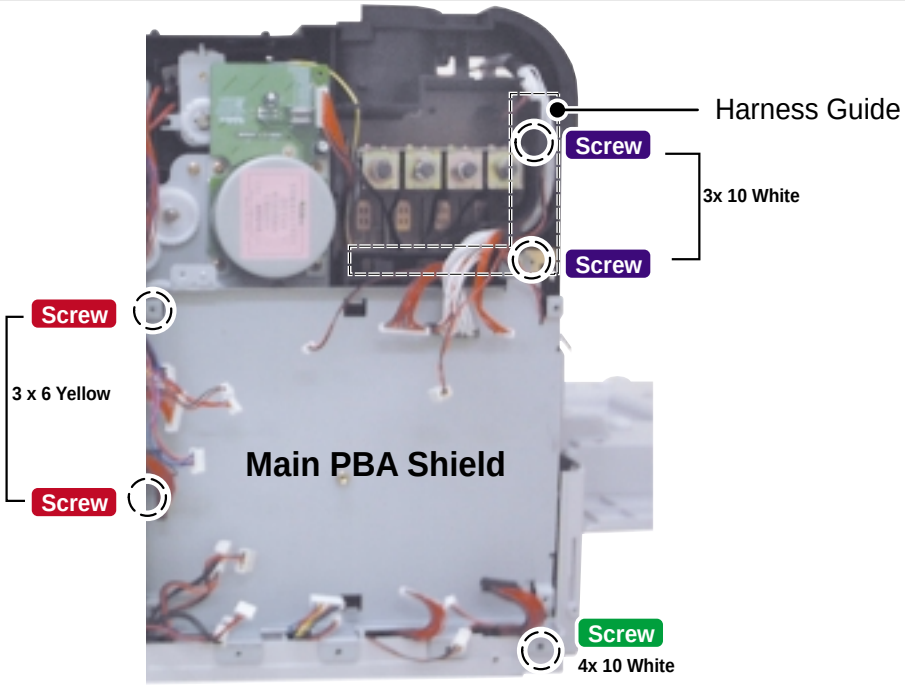


6.4.11 DEVE drive ass'y

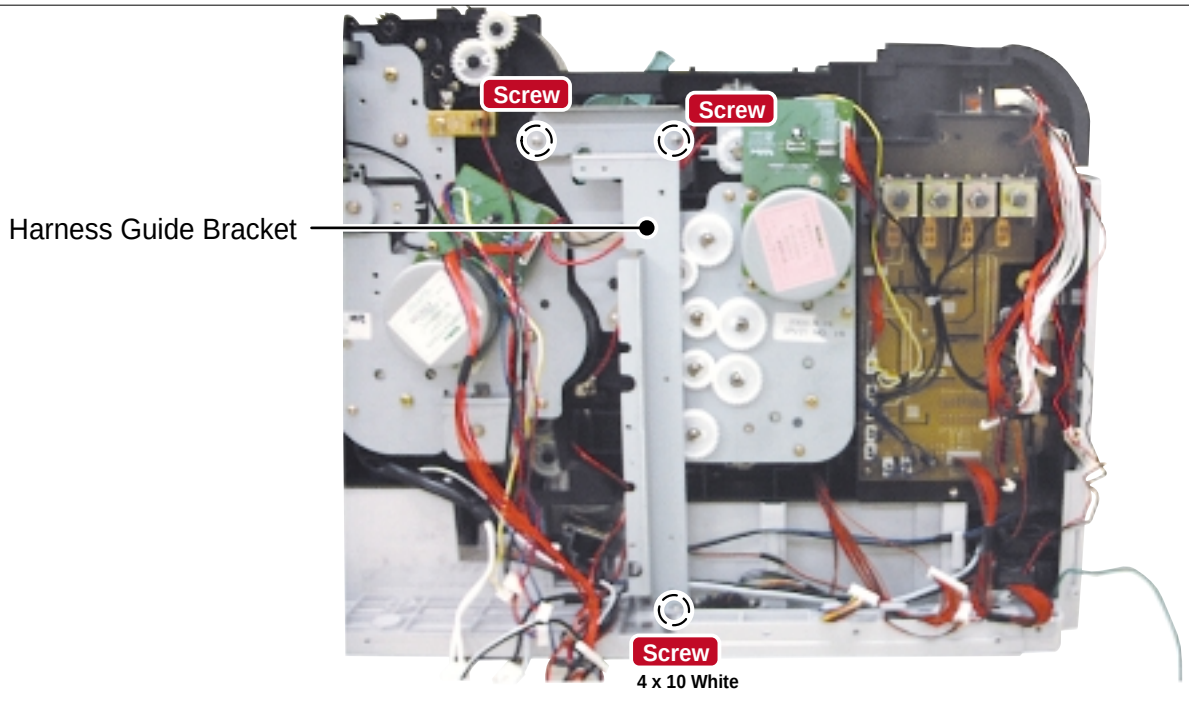
>>Before disassembling it:

* Disassemble the **rear cover** (Refer to 6.4.3)
* Disassemble the **main PBA** (Refer to 6.4.7)

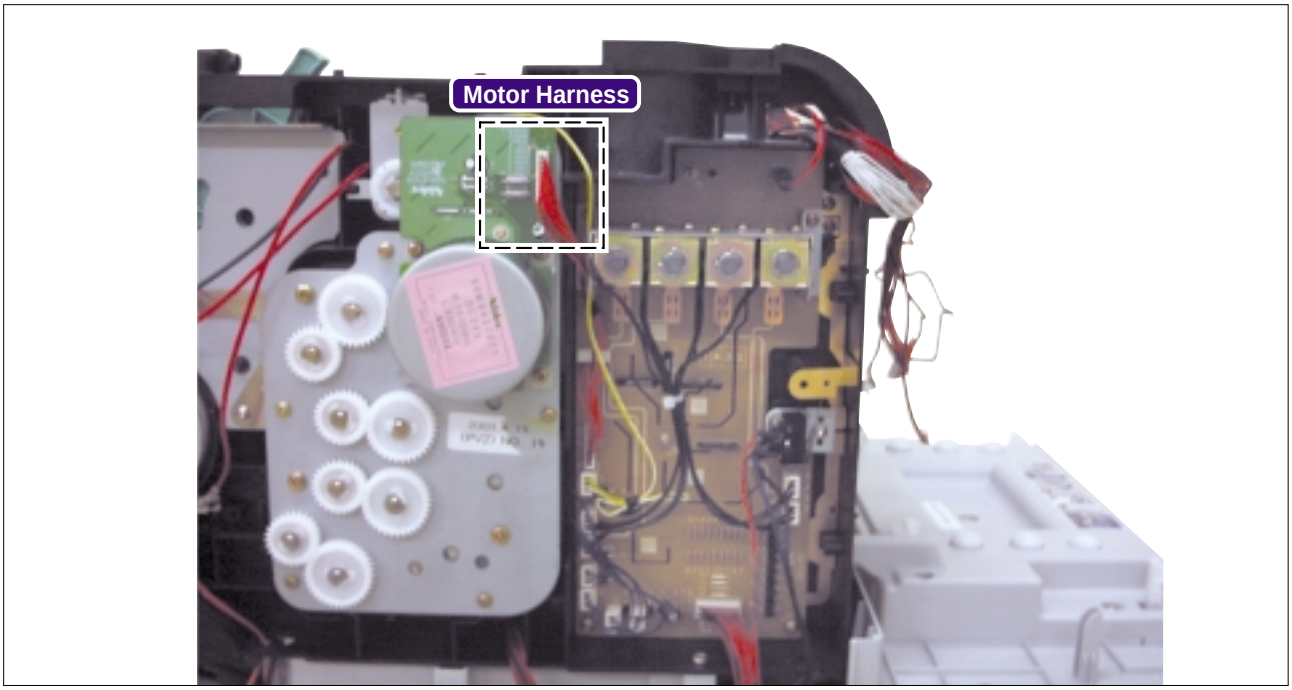
1) Remove the main PBA shield and harness guide by releasing 5 screws
(2 EA 3*6 machine screw, gold; 2 EA 3*10 silver, 1 EA 4*10 silver)



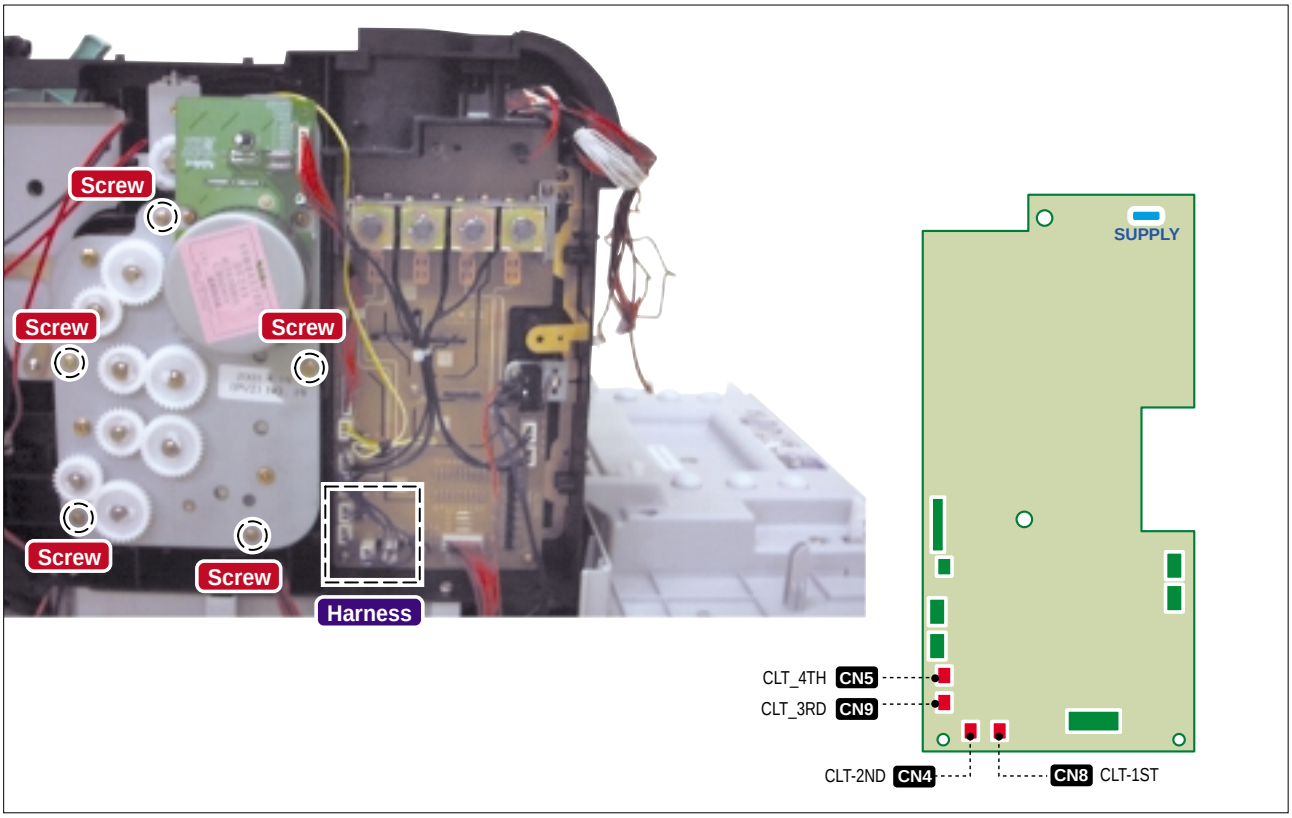
2) Remove the ground harness and the harness guide bracket by releasing 3 screws
(2 EA 3*6 machine screw, gold: 1 EA 4*10 silver).



3) Separate the harness from the DEVE motor.



4) Release 5 screws (3*10 silver) from the DEVE drive ass'y.
Remove 4 harnesses connected to the DEVE drive PBA and then remove the DEVE drive ass'y.

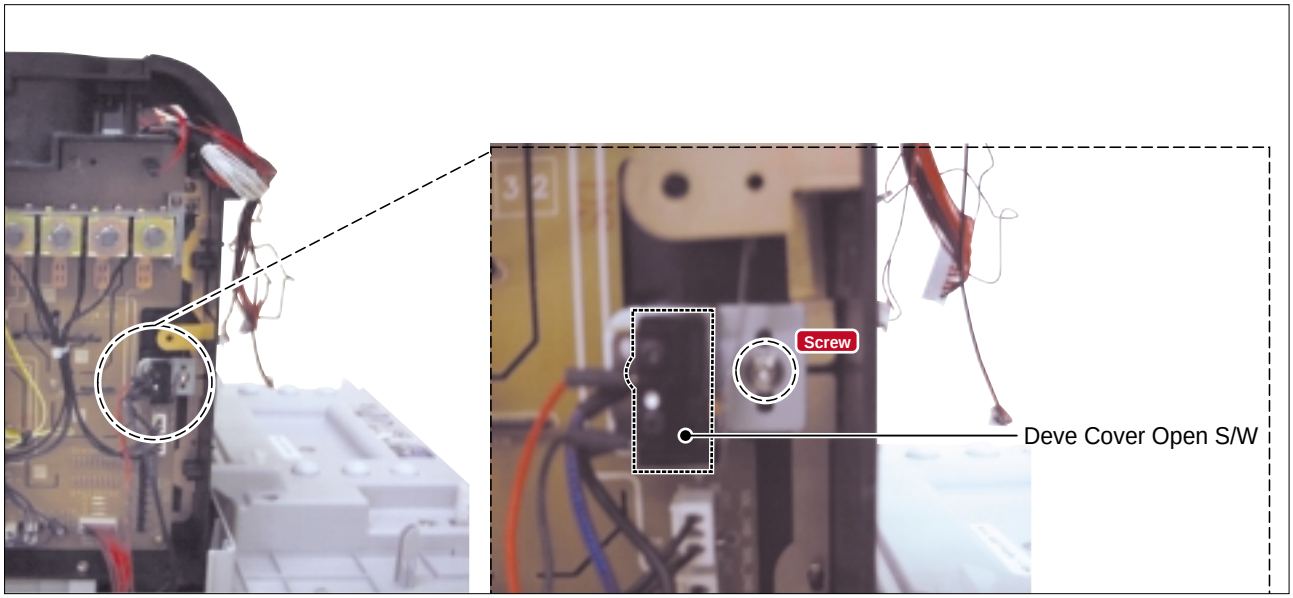


6.4.12 DEVE drive PBA and DEVE cover open S/W

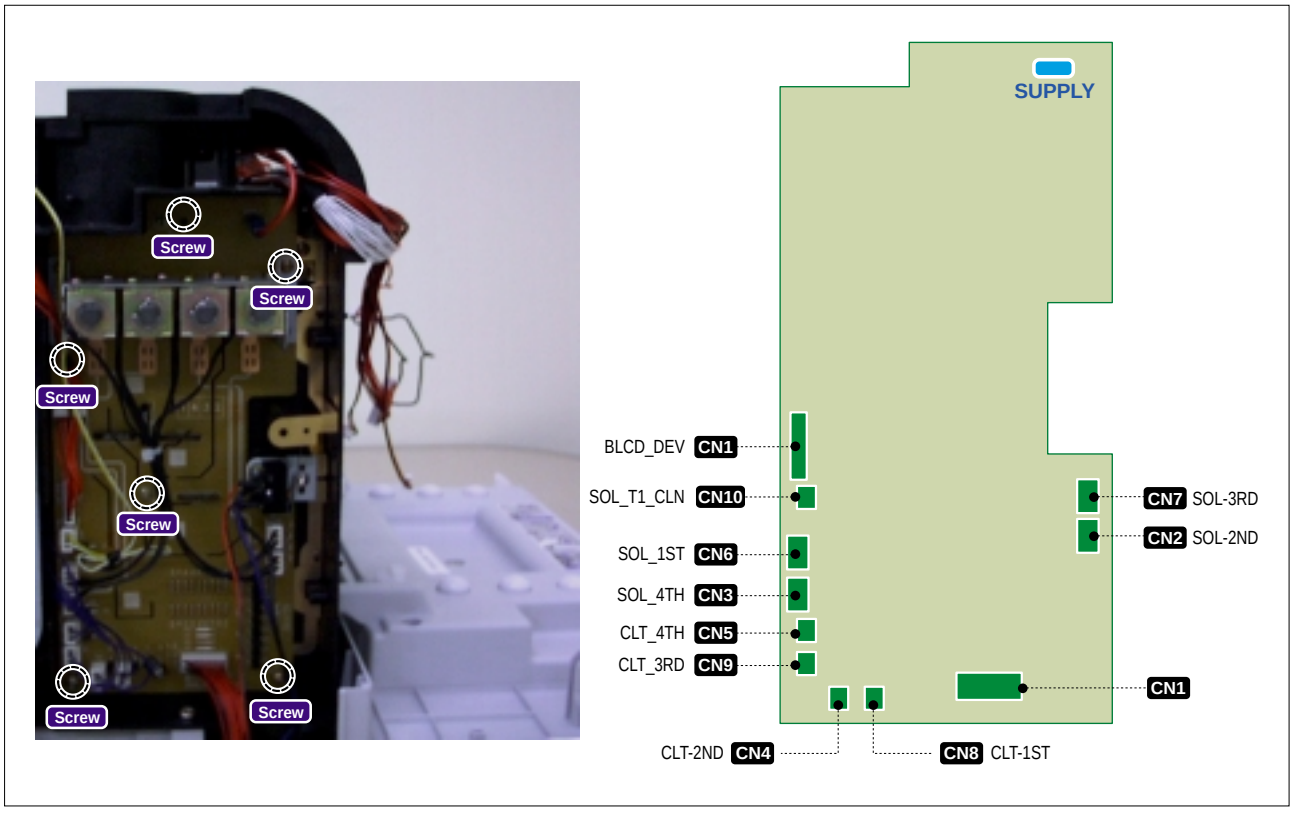
>>Before disassembling it:

* Disassemble the **rear cover** (Refer to 6.4.3)
* Disassemble the **main PBA** (Refer to 6.4.7)
* Disassemble the **main PBA bracket** (Refer to 6.4.7.2)

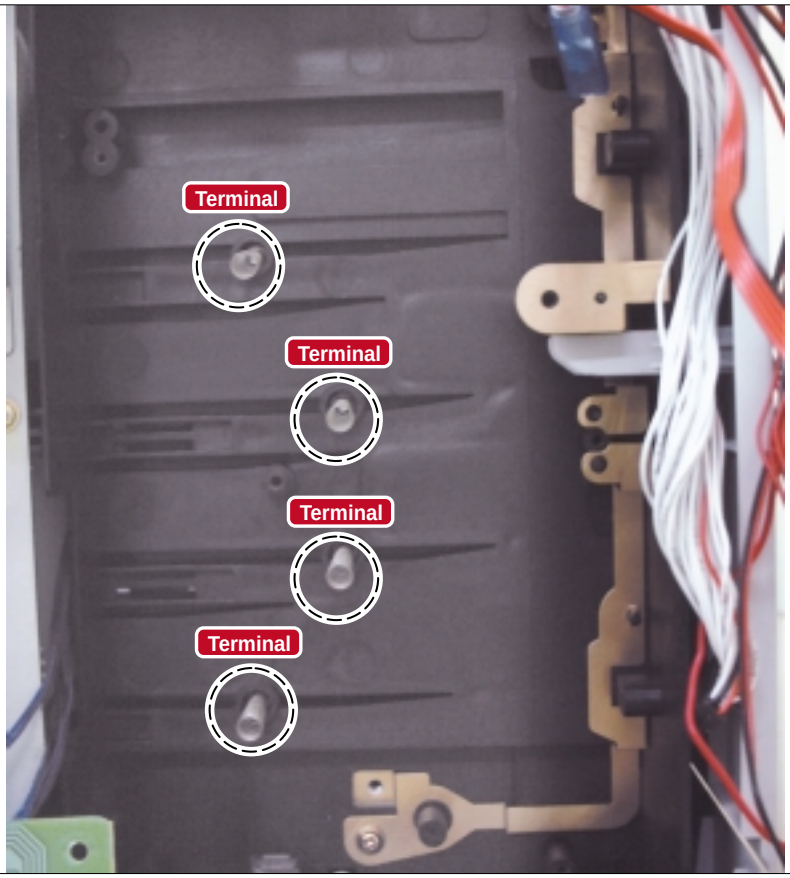
1) Release 1 screw (3*10 silver) and then take out the DEVE cover open S/W.



2) Remove all harnesses and 6 screws (3*10 silver) and then take out the DEVE drive PBA.



3) Remove 4 high-voltage terminals.

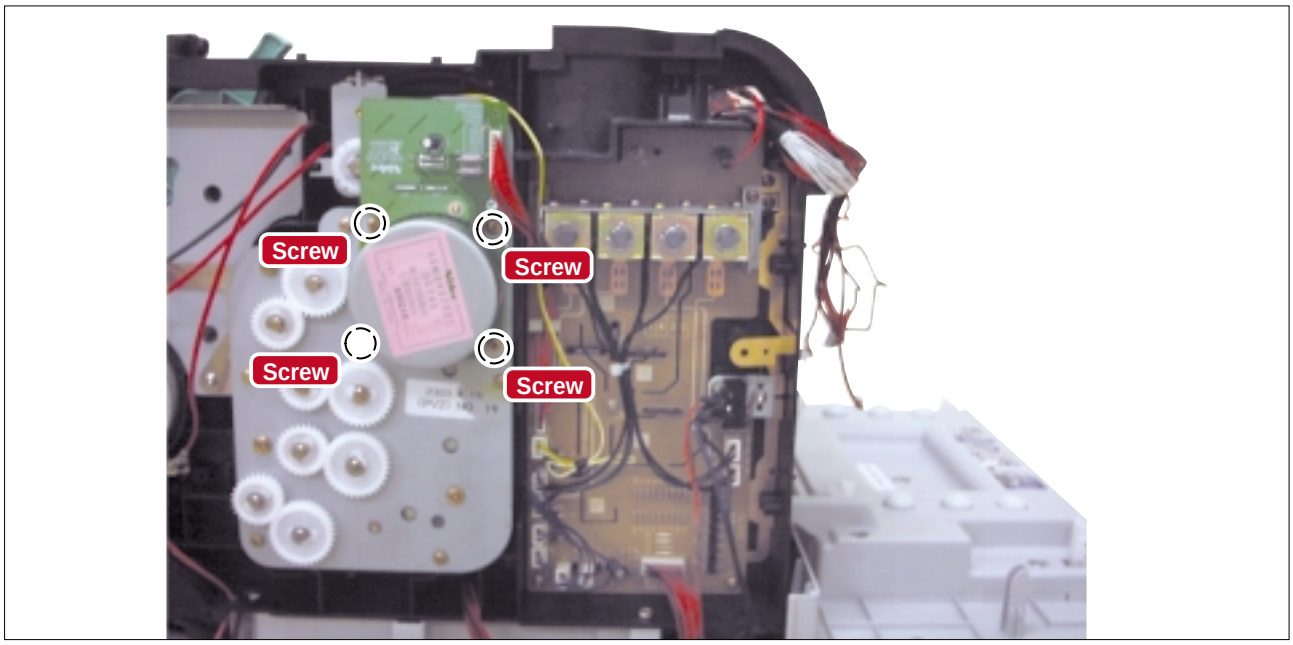


6.4.13 DEVE Drive Motor ITB Cleaning Solenoid

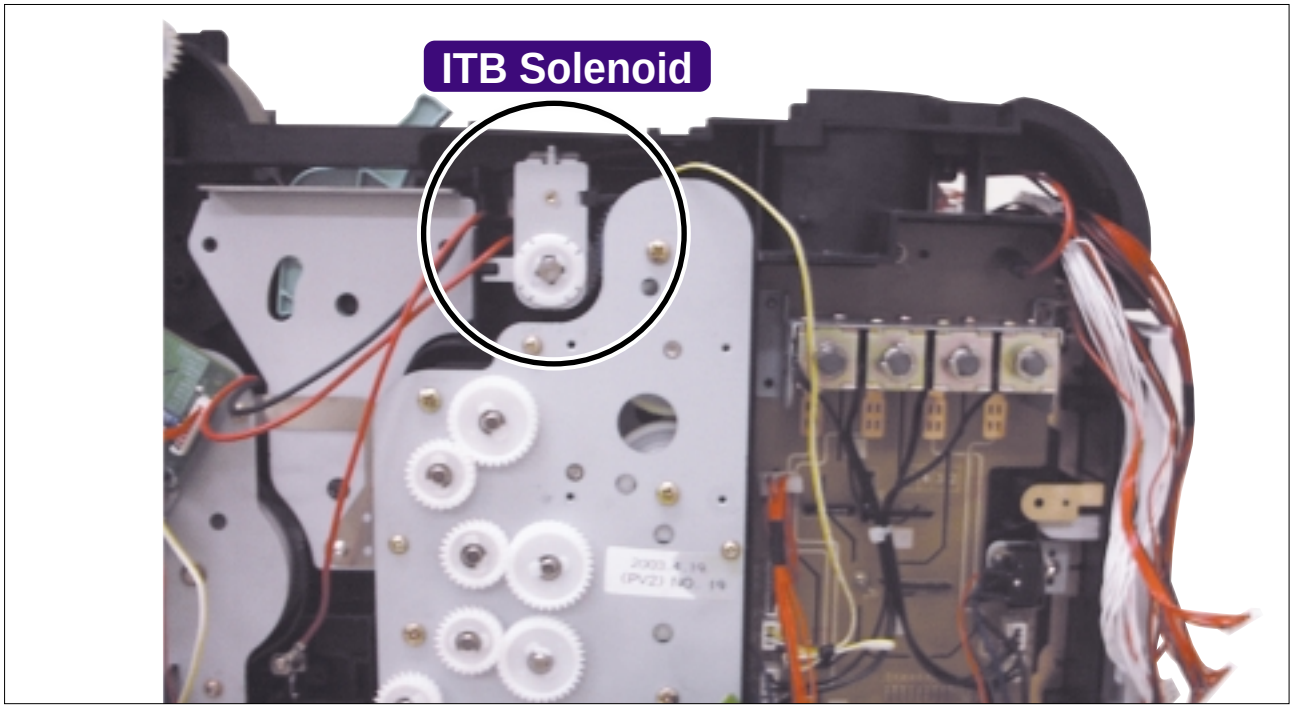
>>Before disassembling it:

* Disassemble the **rear cover** (Refer to 6.4.3)
* Disassemble the **main PBA** (Refer to 6.4.7)
* Disassemble the **main PBA bracket** (Refer to 6.4.7)
* Disassemble the **DEVE drive motor**. (Refer to 6.4.7)

1) Release 4 screws (3*6 gold) and then remove the DEVE drive motor.



2) Unplug one harness from the DEVE drive PBA and then remove the ITB cleaning solenoid.

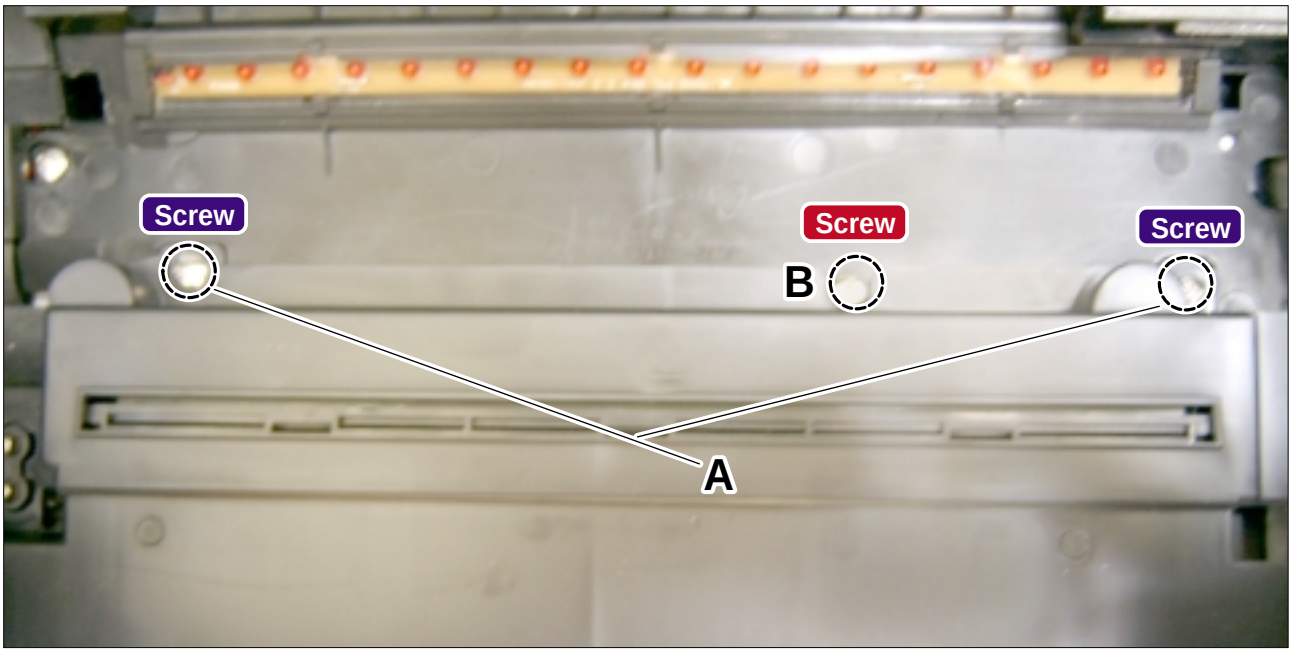


6.4.14 Erase Lamp

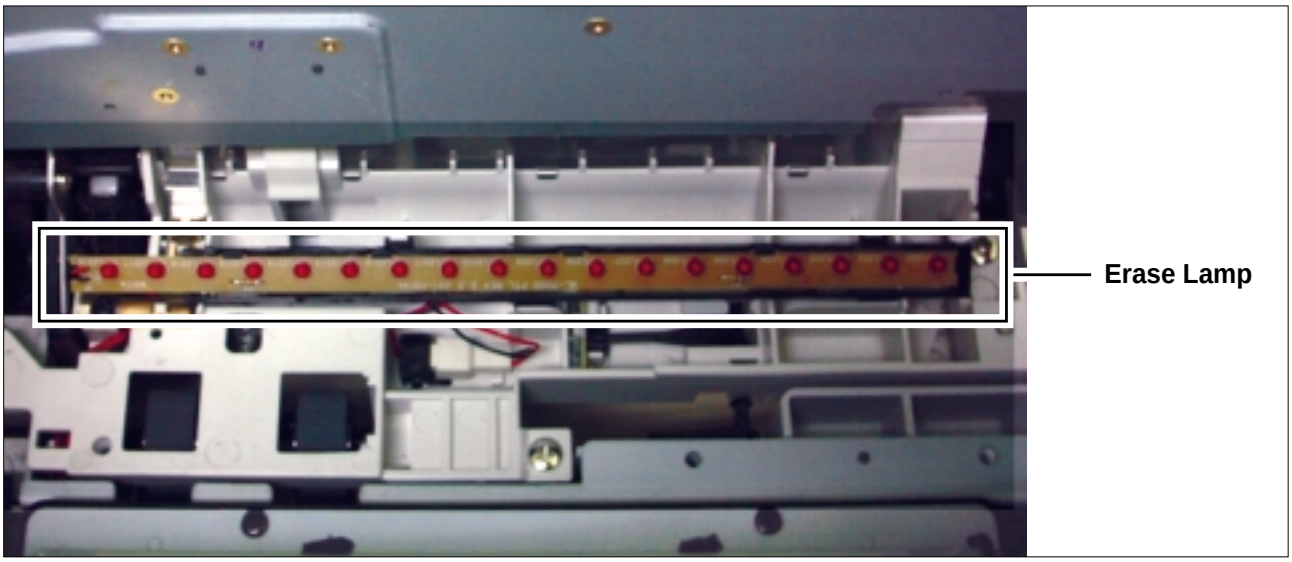
>> Before disassembling it:

* Remove **all consumable parts** (Toner cartridge, ITB unit, and OPC drum) (Refer to 6.3.3)
* Disassemble the **front cover and top cover** (Refer to 6.4.1)
* Disassemble the **waster toner ass'y**. (Refer to 6.4.18)

1) Release 2 screws (4*15 gold) and 2 clips located close to the DEVE cover hinge and remove the LSU cover: A
Release one screw (4*10 silver) and then remove the lamp cover: B



2) Release 2 clips and lift the eraser lamp ass'y, remove one harness and then remove the erase lamp.

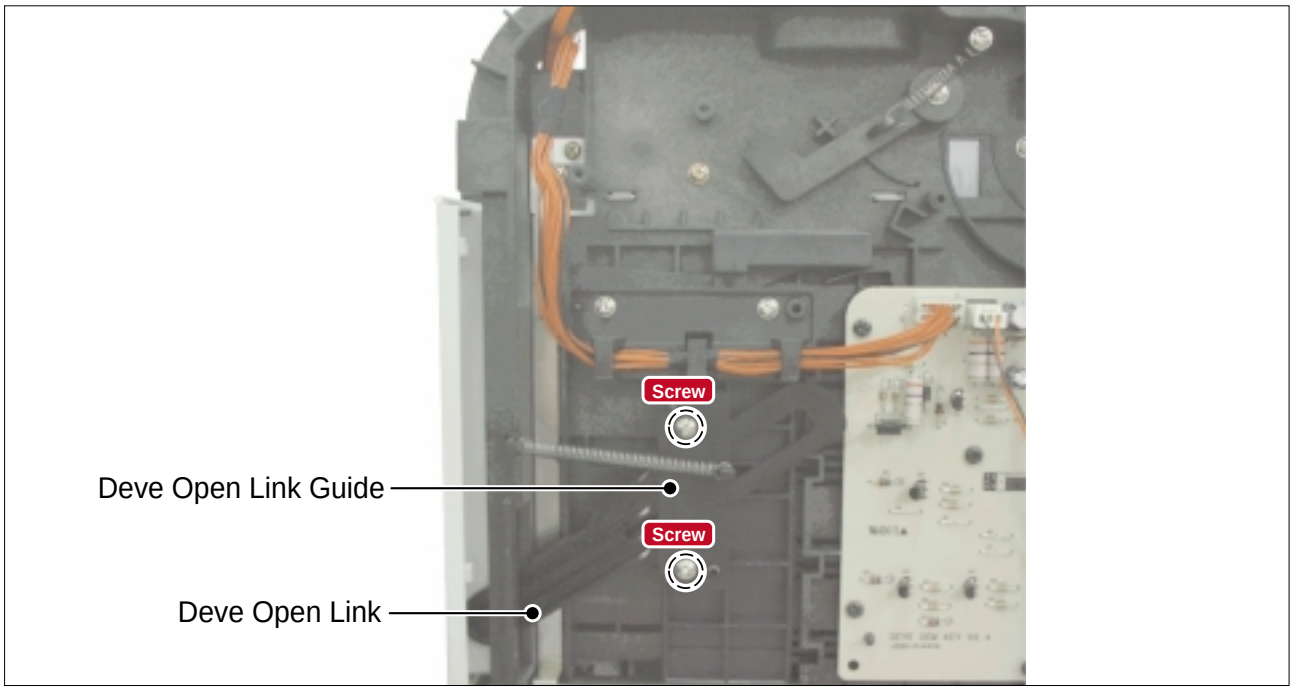


6.4.15 DEVE cover

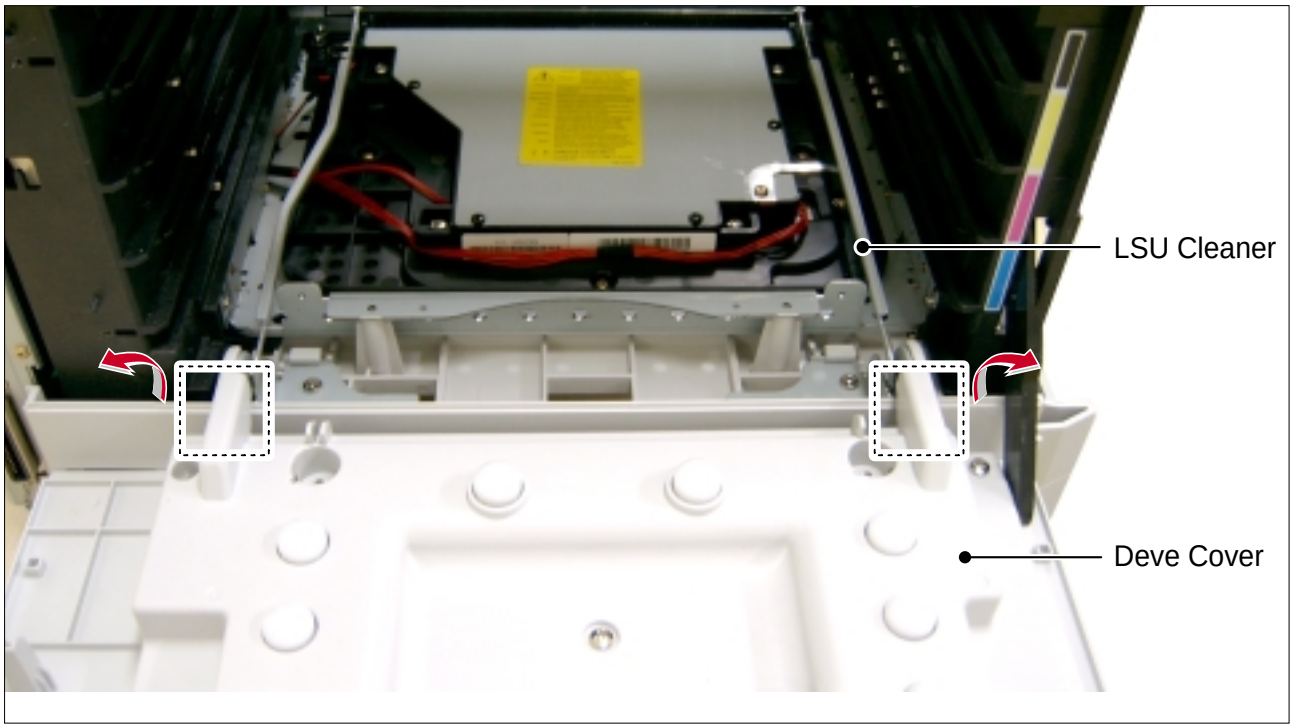
>> Before disassembling it:

* Remove **all consumable parts** (Toner cartridge, ITB unit, and OPC drum) (Refer to 6.3.3)
* Disassemble the **front cover** and **top cover** (Refer to 6.4.1)
* Disassemble the **LSU cover**. (Refer to 6.4.14)

1) Remove 2 screws (3*10 silver) and then remove the DEVE open link guide.



2) Separate the DEVE cover by pulling it in the direction of the arrow.

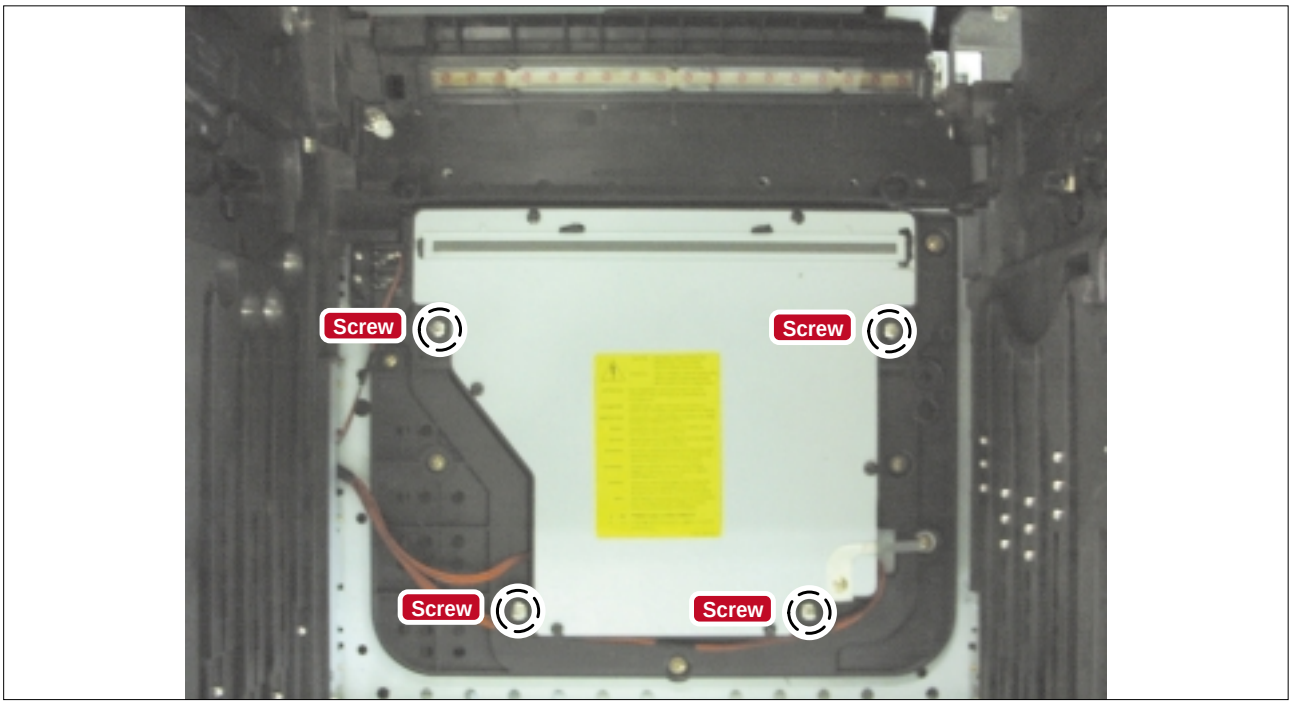


6.4.16 LSU unit

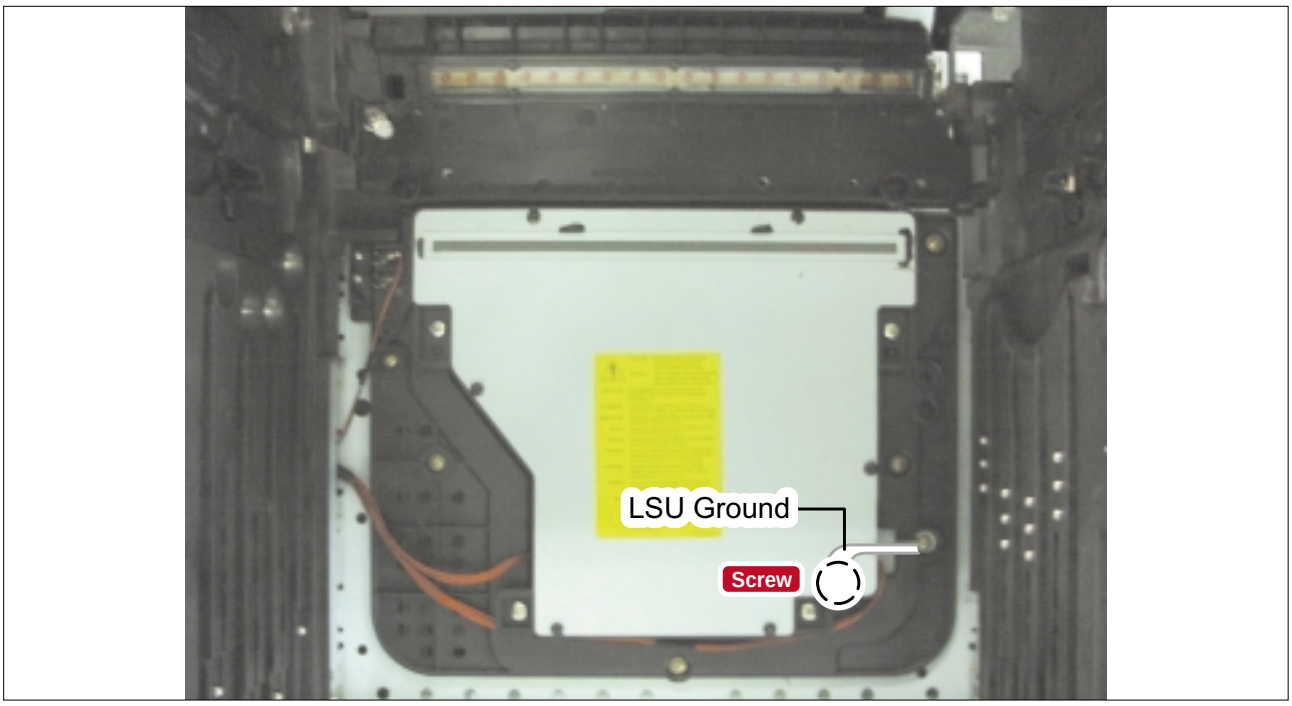
>> Before disassembling it:

* Remove the consumable parts (Toner cartridge, ITB unit, and OPC drum) (Refer to 6.3.3)
* Disassemble the **Deve cover**. (Refer to 6.4.15)

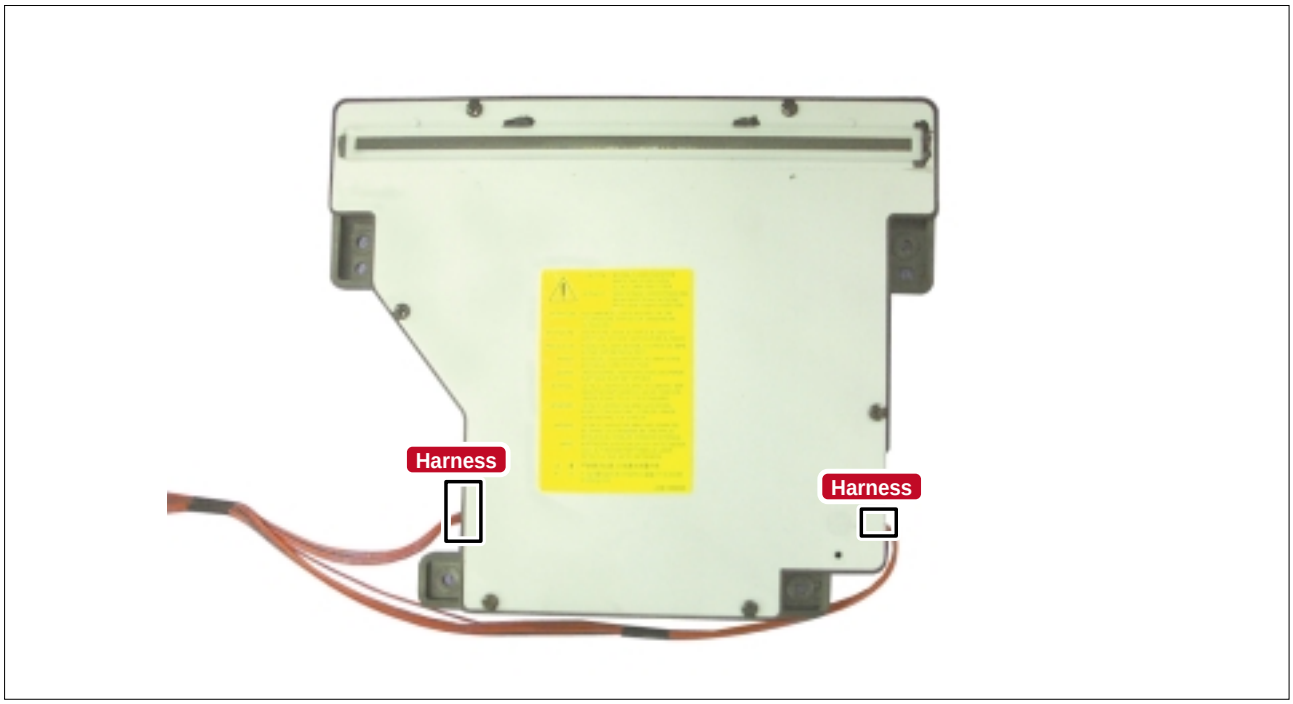
1) Release 4 screws (4*10 silver). (Use a short length cross-head screwdriver.)



2) Release one screw (3*8 yellow). (Use a short length cross-head screwdriver.)



3) Separate 2 harnesses and remove the LSU unit.

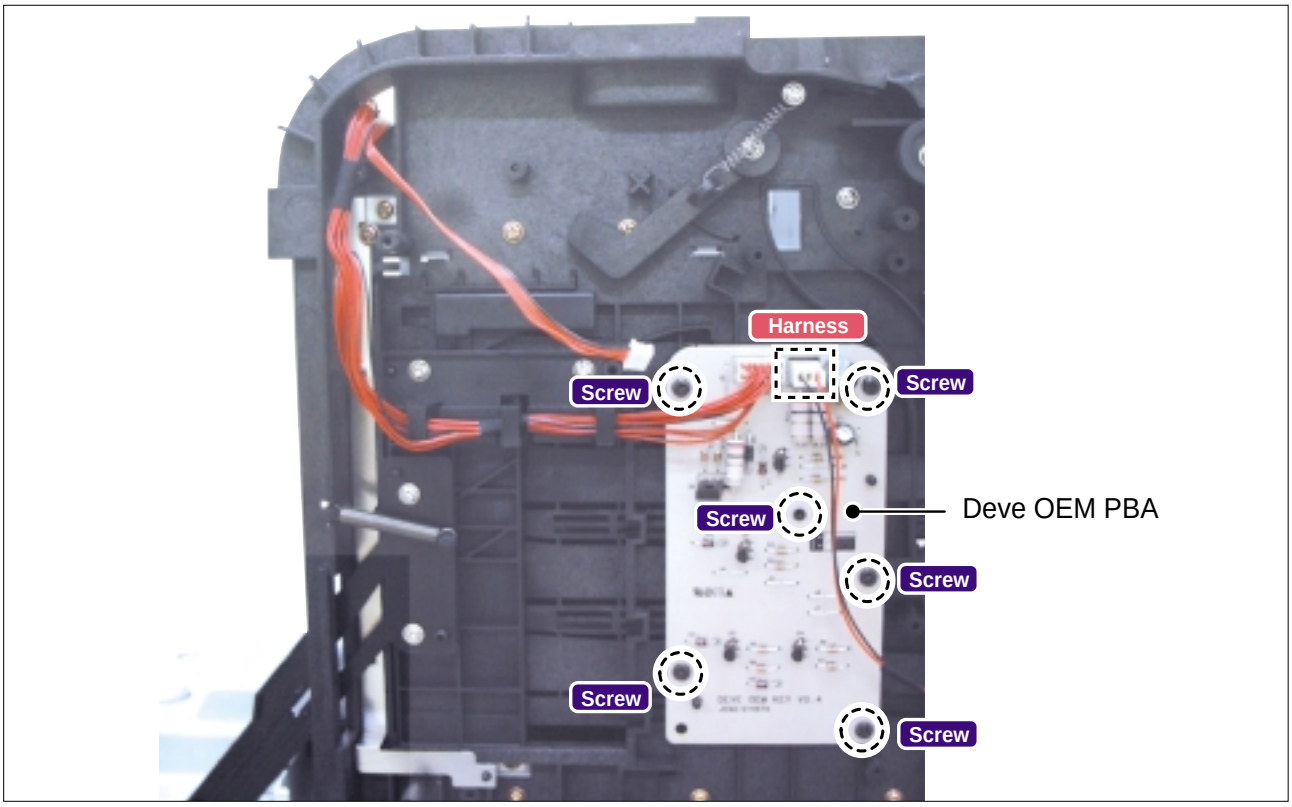


6.4.17 DEVE OEM PBA

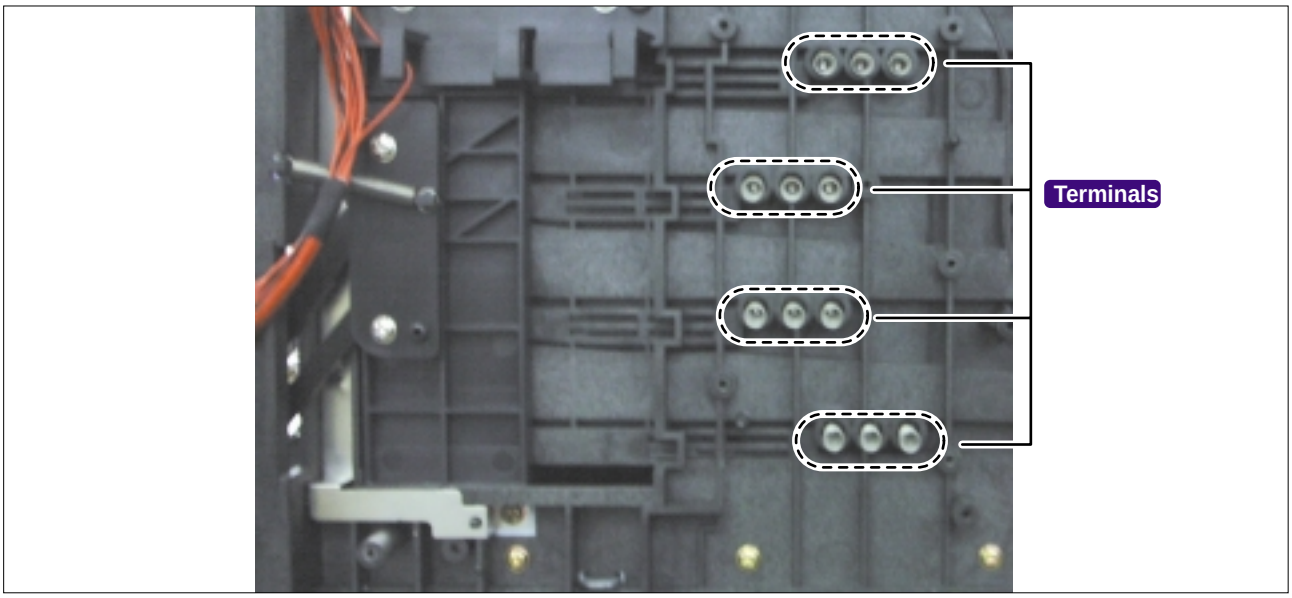
>> Before disassembling it:

* Disassemble the **front cover** and the **top cover**. (Refer to 6.4.1)

1) Separate one harness(CN1) from the HVPS and one harness(CN2) from the DEVE OEM PBA. Remove 6 screws (3*8 black) and then take out the DEVE OEM PBA.



2) Remove 12 terminals.

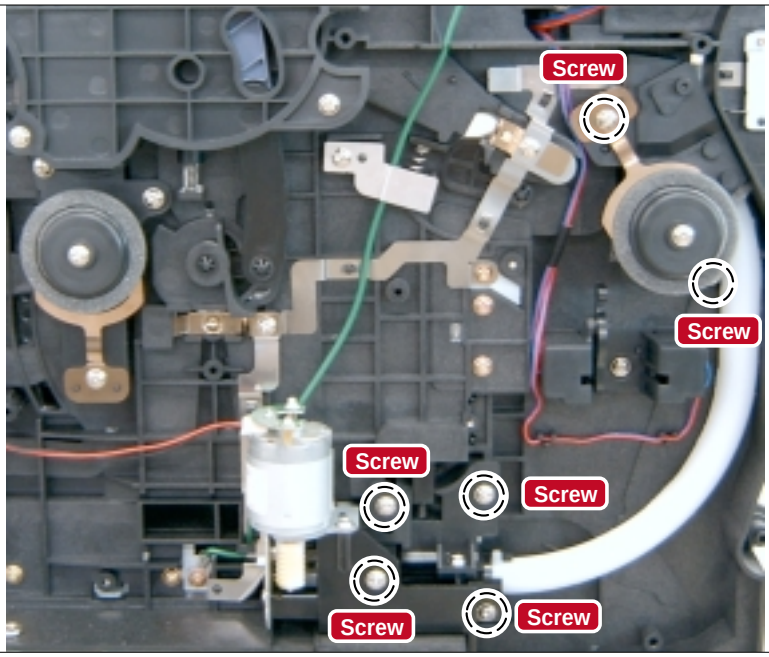


6.4.18 Waste toner ass'y

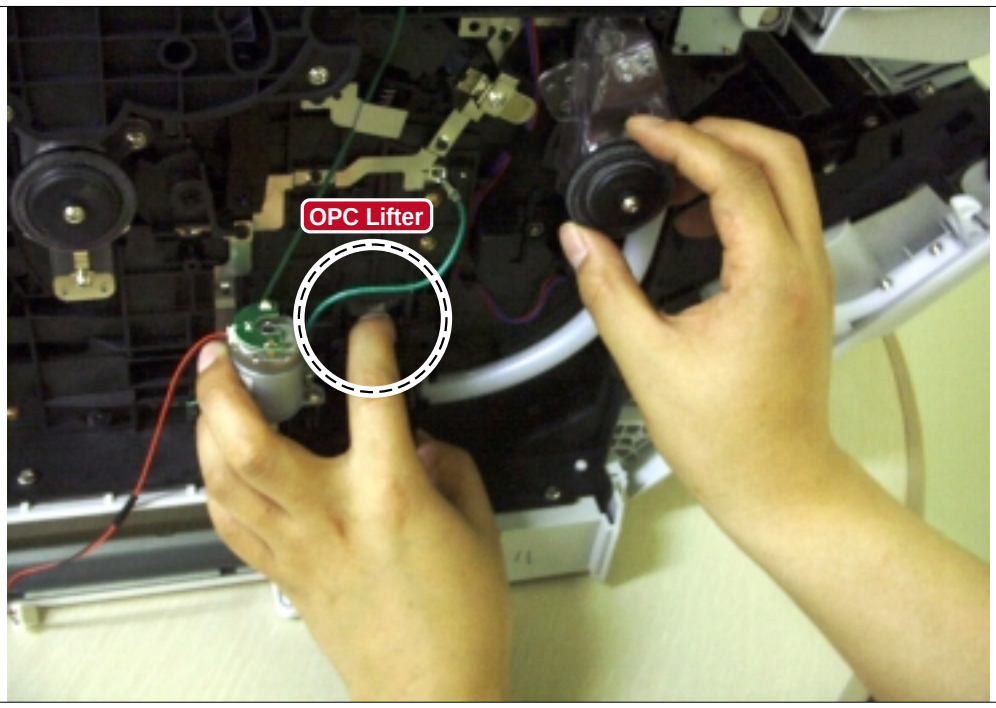
>> Before disassembling it:

* Disassemble a **front cover** and a **top cover**. (Refer to 6.4.1)

1) Release 6 screws (3*10 silver).
   * Upper part: 4 screws * Lower part: 2 screws

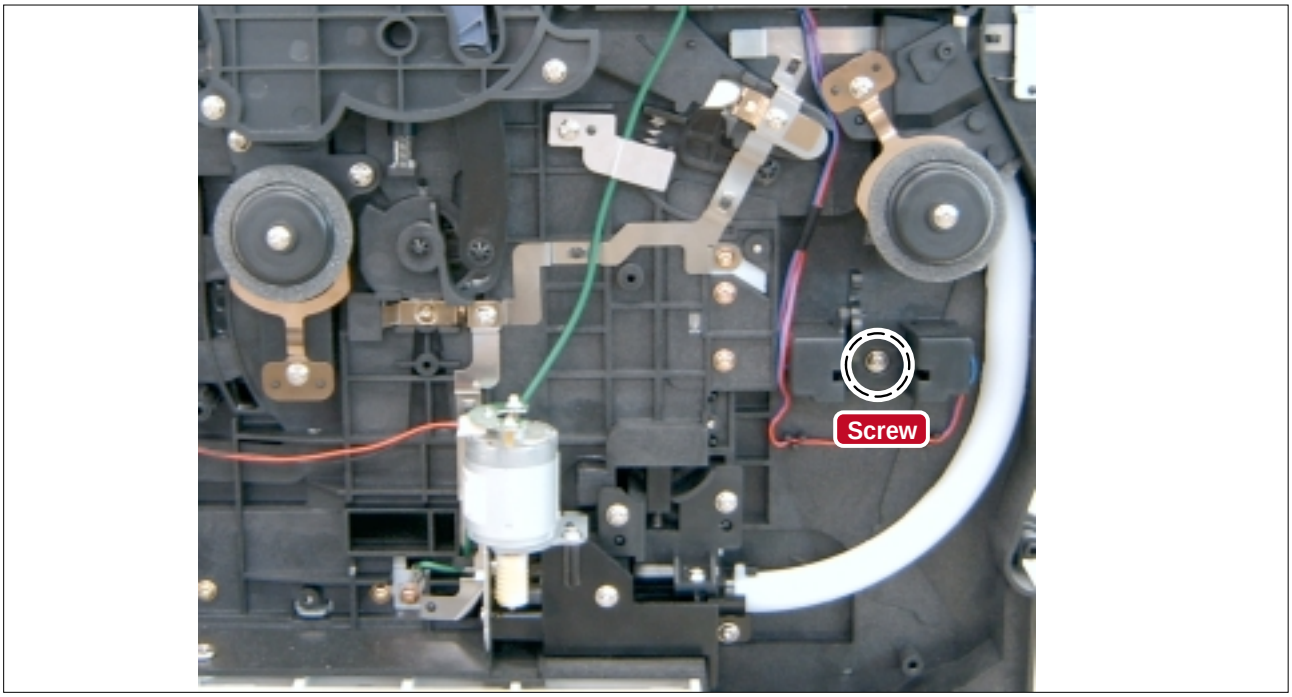


2) Remove the waste toner ass'y by first reaching into the OPC cavity and lightly depressing the waste toner receiver whilst at the same time gently pulling the waste toner motor assy away from the set. Once the ass'y is released refer to the photograph and remove the ass'y.



Caution: * *It is very likely that waste toner will be spilled when removing the waste toner ass'y.*

3) Release one screw (3*10 silver) and then remove the sensor cover.

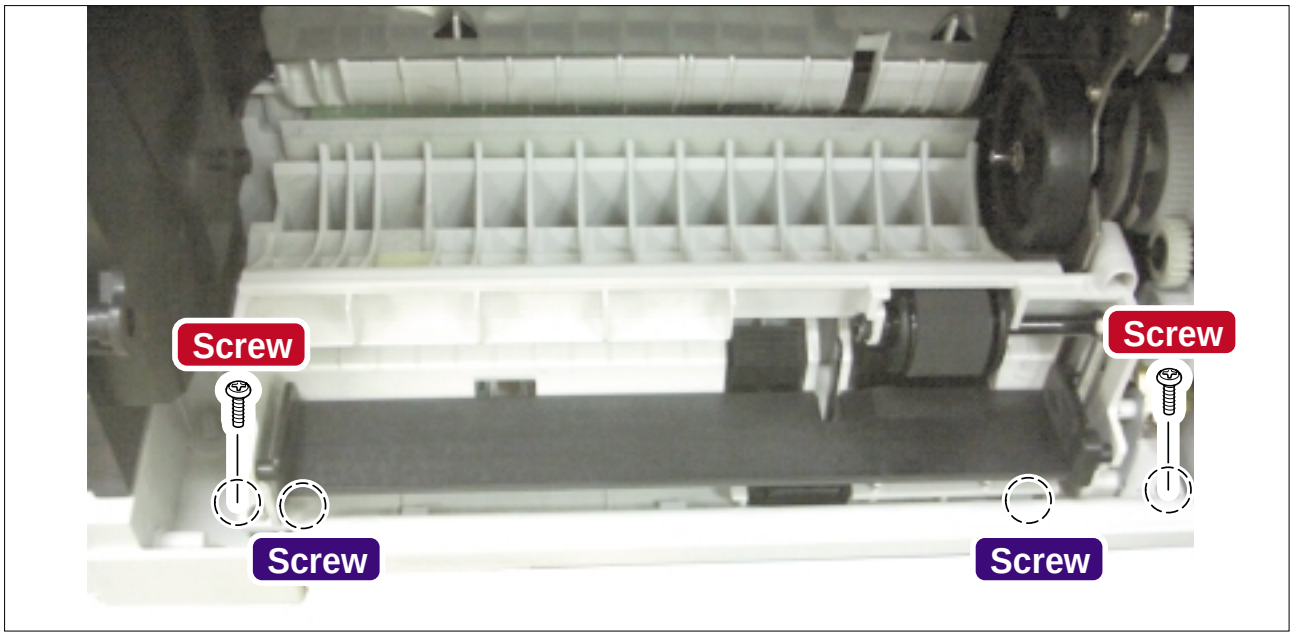


6.4.19 MPT(Multi Purpose Tray)

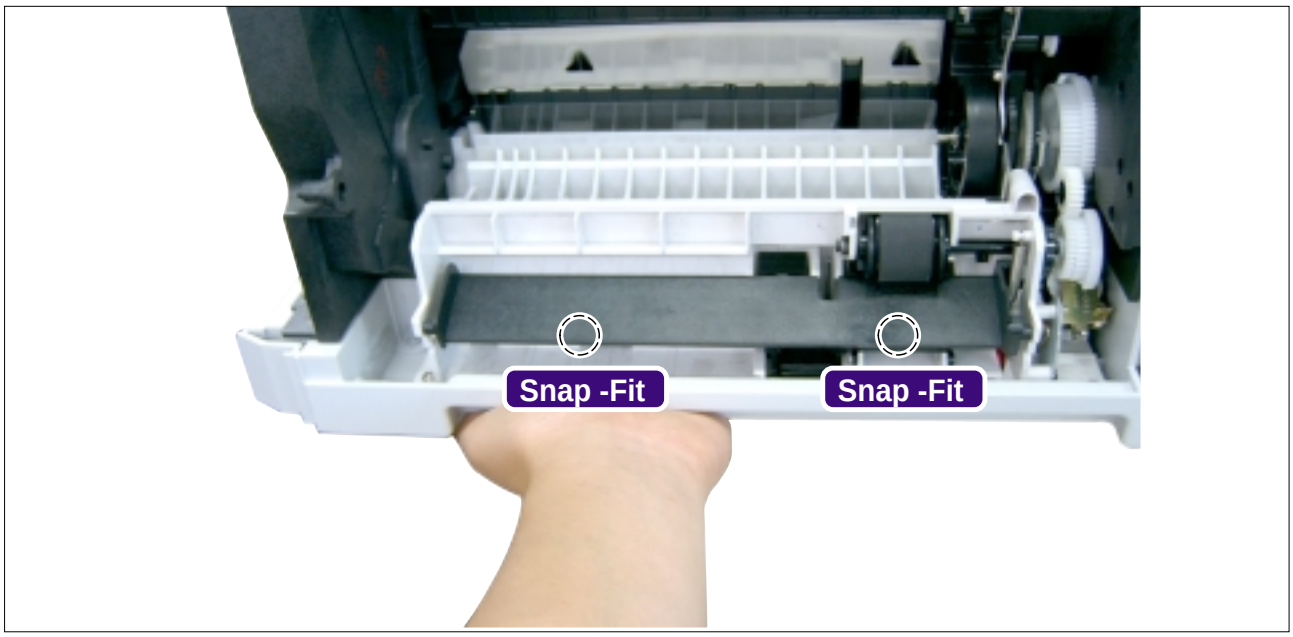
>> Before disassembling it:

* Disassemble **all consumption parts** (Toner cartridge, ITB unit, and OPC drum) (Refer to 6.3.3)
* Disassemble the **front cover** and **top cover** (Refer to 6.4.1)
* Disassemble the **rear cover**. (Refer to 6.4.3)
* Disassemble the **duplex cover**. (Refer to 6.4.4)
* Disassemble the **SMPS & main PBA**. (Refer to 6.4.7)

1) Release 4 screws (3*10 silver)



2) Release the 2 clips located underneath the machine (see photograph). Pull the MP Ass'y upward and release the assy.



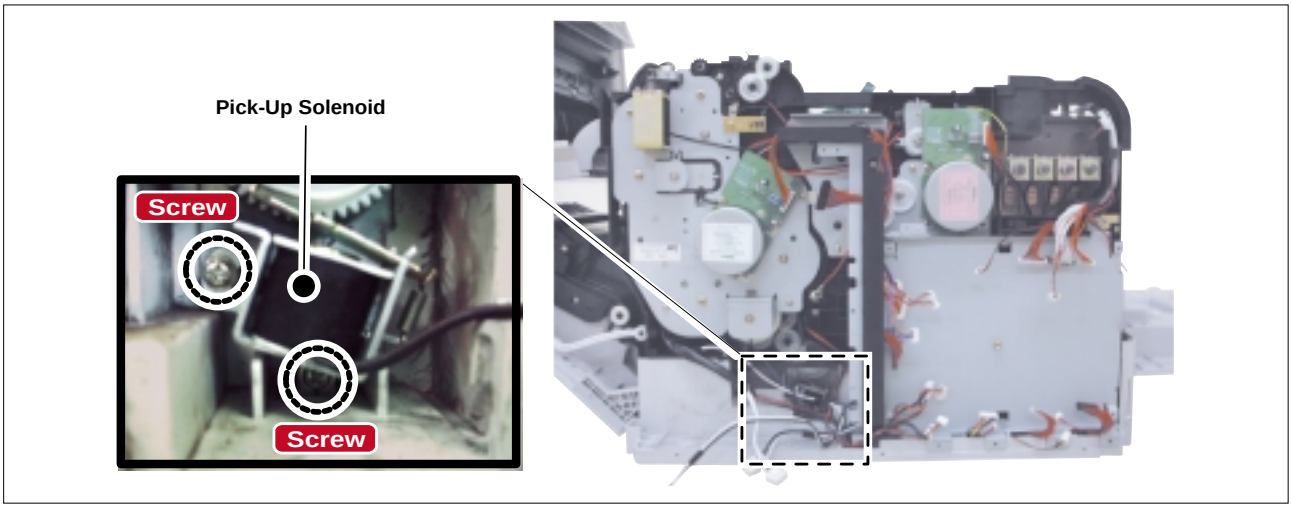
Note : *it is not possible to remove the assy at this stage, take care not to put excessive strain on the cable harness.*

6.4.20Pick-UpAss'y

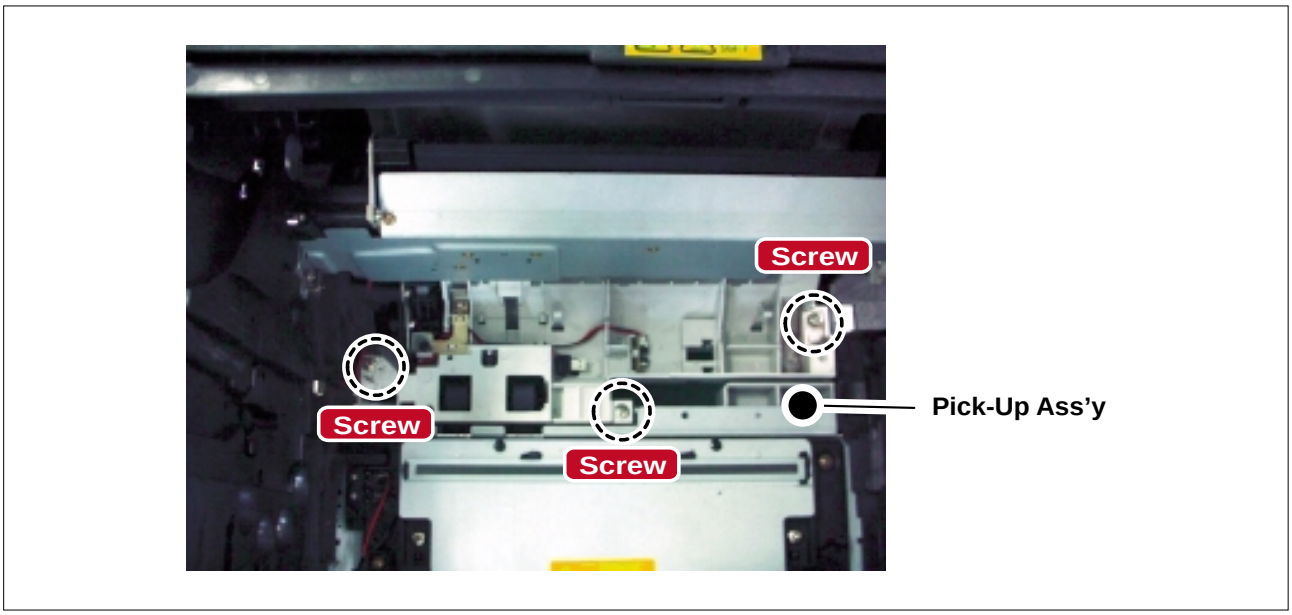
>> Before disassembling it:

*Disassemble all consumable parts (Toner cartridges, ITB unit and OPC drum) (Refer to 6.3.3)
*Disassemble the front cover and top cover (Refer to 6.4.1)
*Disassemble the rear cover. (Refer to 6.4.3)
*Disassemble the duplex cover. (Refer to 6.4.4)
*Disassemble the SMPS & main PBA. (Refer to 6.4.7)
*Disassemble the Erase Lamp. (Refer to 6.4.14)
*Disassemble the Waster Toner Ass'y (Refer to 6.4.18)

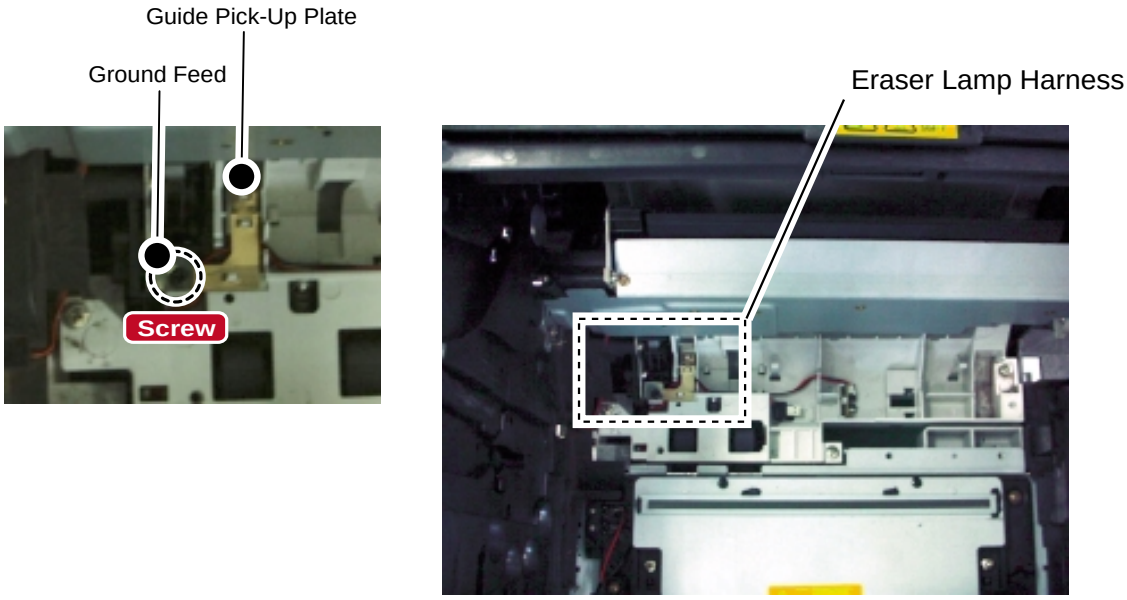
1) Undo 2 screws (3*10 silver) and remove the “Pick-up Solenoid”. Then remove the plastic circlip which retains the Pick-Up Gear and also remove the gear wheel. Release the shaft retaining bearing.



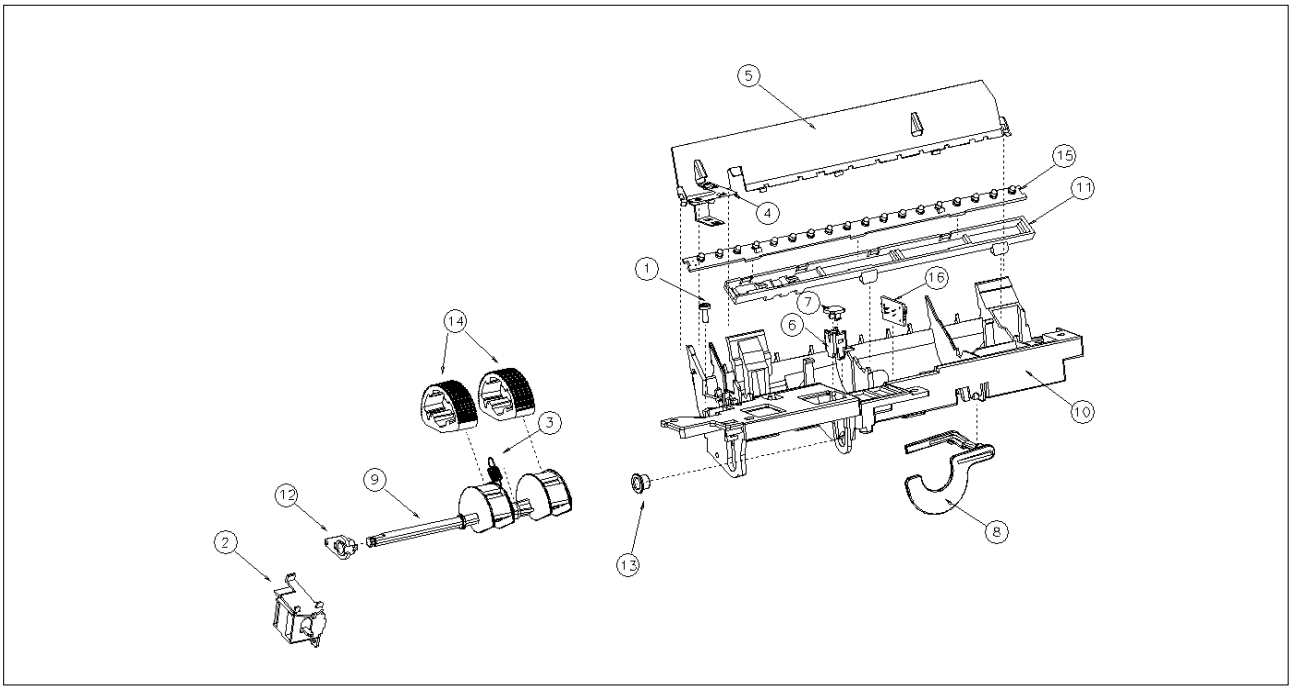
2) Remove the 3 screws (4*10 silver) in the “Pick-up Ass’y”



3) Remove the 3*8 black screw retaining the Guide Pick-Up plate. Using a small flat bladed screwdriver or similar tool force the brass ground plate off the retaining lugs and bend it upward slightly. Release the Eraser Lamp harness and paper Empty Sensor harness, these pass between the main engine frame and base frame and cannot be removed.



4) Remove the “ACTUATOR-EMPY (JC72-00465A)” sensor arm and then take out the “Pick-up Ass’y” by lifting the right hand side and sliding the shaft from the frame.



No.	Code	Description	Qt'y
1	6003-000119	SCREW-TAPTITE	1
2	JC33-00007A	SOLENOID-PICK UP	1
3	JC61-00482A	SPRING ETC-PICK UP	1
4	JC70-00359A	IPR-GROUND FEED	1
5	JC70-00360A	IPR-GUIDE INPUT	1
6	JC72-00463A	PMO-CAP CONNECTOR L	1
7	JC72-00465A	PMO CAP CONNECTOR U	1
8	JC72-00719A	PMO-ACTUATOR EMPTY	1
9	JC72-00729A	PMO-SHAFT PICK UP	1
10	JC72-01076A	PMO-GUIDE PAPER	1
11	JC72-01218A	PMO-HOLDER ERASER	1
12	JC72-41191A	PMO-BEARING SHAFT	1
13	JC72-41364A	PMO-BUSHING_P/U,MP	1
14	JC73-00149A	RPR-RUBBER PICK UP	2
15	MLC500-5538	PBA-ERASER ASS'Y	1
16	MLC500-5542	PBA-PAPER EMPTY ASS'Y	1

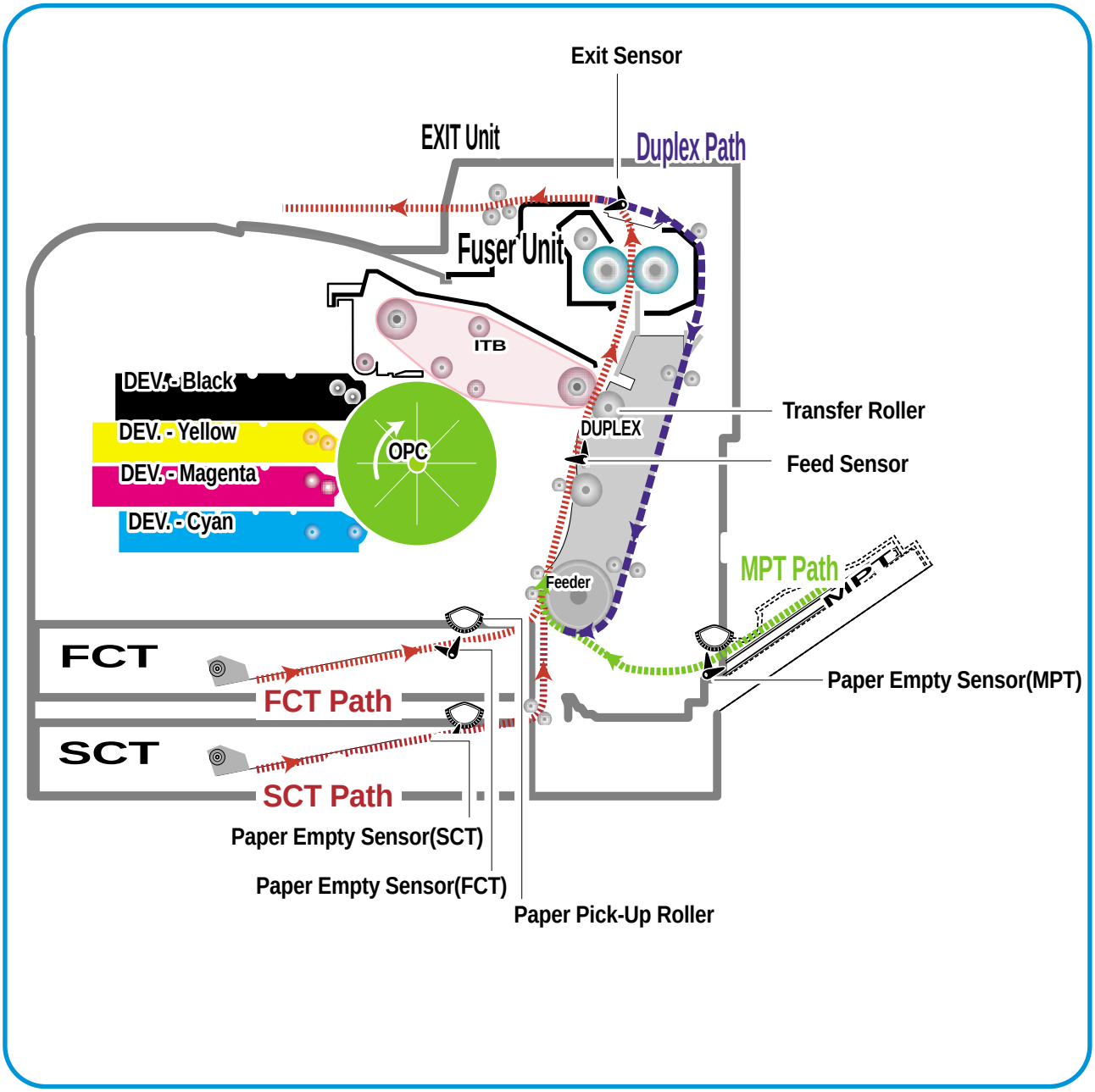
< Pick-Up Ass'y ExplodedView and Parts List >

7. Alignment and Adjustments

This chapter describes some of the main service procedures including:
Using the EDC mode; Clearing paper jam and test patterns.
Much of this chapter is also included in the user's guide.

7.1. Paper path and Paper jam

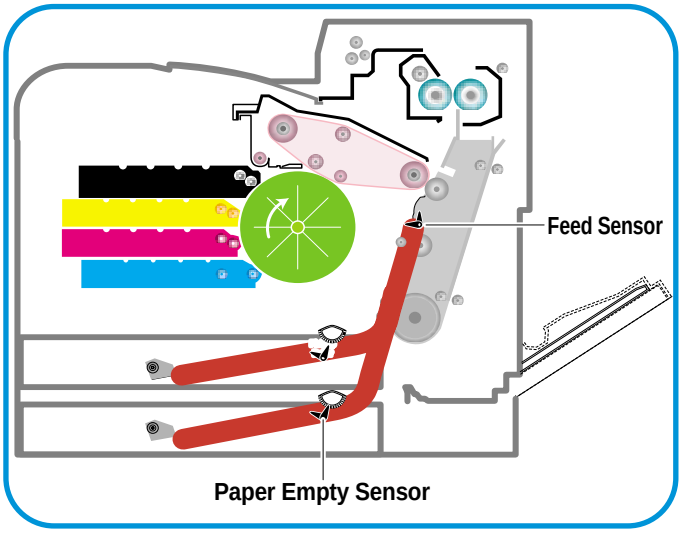
7.1.1 Paper path



7.1.2 Jams

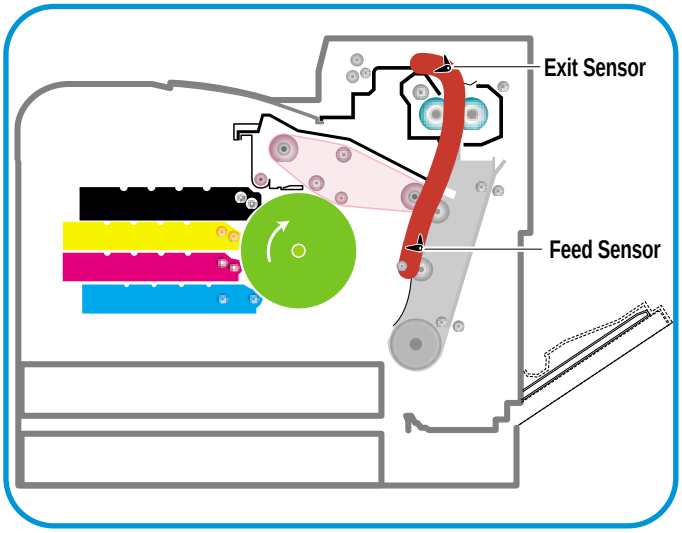
1) Jam0 (Jam in feed area)

* After a page was picked up, it was not fed.
* Paper does not reach the feed sensor in a certain time.
* Feed sensor is faulty and does not detect paper.
  - FCF pickup error: When a paper is not picked up in the 1st cassette.
  - SCF pickup error: When a paper is not picked up in the 2nd cassette.



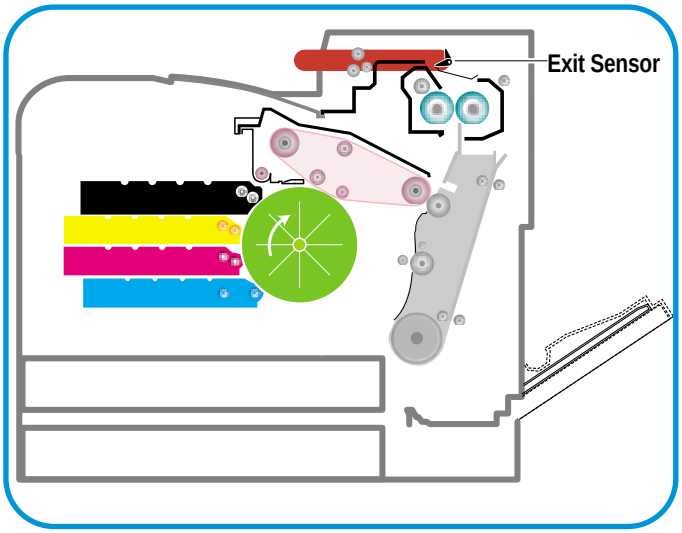
2) Jam1 (Jam inside printer)

* After the leading edge of the paper has reached the feed sensor, the feed sensor doesn't turn off (fails to detect the trailing edge of the paper) in a certain time
* After the leading edge of the paper has passed the feed sensor, it doesn't reach the exit sensor in a certain time.
* Exit senor is faulty and does not detect paper.



3) Jam2 (Jam in exit area)

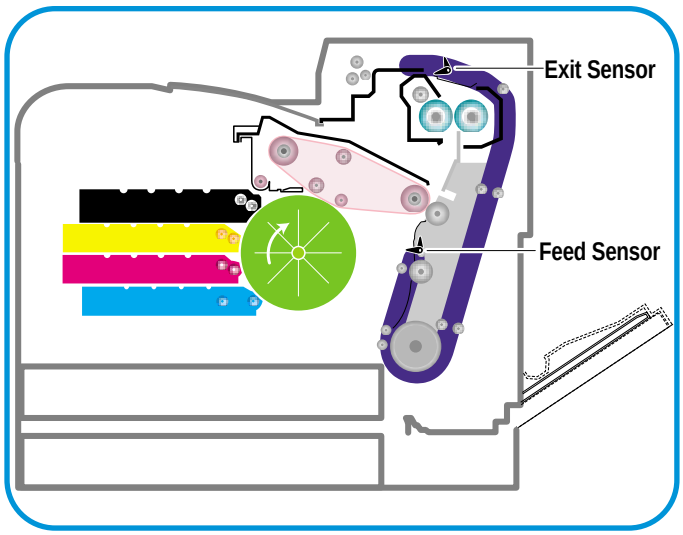
* After the leading edge of the paper has passed, the trailing edge of the paper has not passed the exit sensor within a certain time
* The paper drive motor has been driving for longer than the time needed for the longest paper size and the exit sensor is not off.



4) Jam duplex (Jam in duplex area)

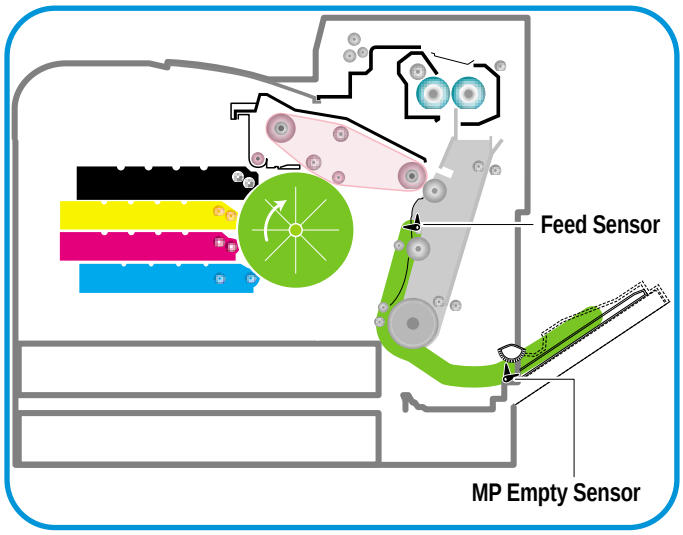
* Jam duplex occurs when printing the reverse side of the paper during duplex printing. After printing the front side the duplex solenoid must operate in order to feed the paper back into the duplex path. If the solenoid fails paper may be stuck in the exit roller and is not fully ejected into the exit tray.

* If the duplex solenoid operates paper is fed back into the machine. If the leading edge of the paper does not reach the feed sensor in a certain time then Jam Duplex occurs.
  - This can be cause by paper being jammed in the duplex path area.



5) Jam MPF

* Paper could not be picked up from the MPF tray.
* After pickup, a paper has been fed, but it doesn't reach the feed sensor in a certain time.
* Feed sensor is faulty and does not detect paper.



7.2 Jam Removal

When a jam occurs while printing a jam message is displayed on the control panel.

*** Jam0 In Tray 1:**
Paper jam in the main cassette.
*** Jam0 In MP Tray:**
Paper jam in the MP tray
*** Jam0 Tray2:**
Paper jam in the SCT (Second cassette tray)
*** Jam Inside Printer:**
Jam 1, Paper is jammed inside the printer.
*** Jam In Exit Area:**
Jam2, Paper is jammed in the exit area when ejecting paper.
*** Jam In Duplex Path:**
While duplex printing, paper is jammed in the duplex unit.

CAUTION: When removing jammed paper, always pull it firmly and evenly without any sudden jerks. If at all possible, remove the paper as a single sheet. If the paper tears ensures ALL paper fragments are removed. Any fragments left inside the machine will cause it to jam again.

7.2.1 Factors that cause paper to jam

- Too much paper is loaded in the cassette.
- Paper in not loaded correctly in the cassette.
- Duplex cover opened while printing.
- Cassette removed while printing.
- Incorrect thickness of paper used.
- Incorrect size of paper used.
- Cassette paper guides not correctly set (loose or too tight).
- Foreign object or other contamination of internal paper path and paper guide ribs.
- Badly damaged or folded leading or trailing edges of the paper.

7.2.2 Tips for Avoiding Paper Jams

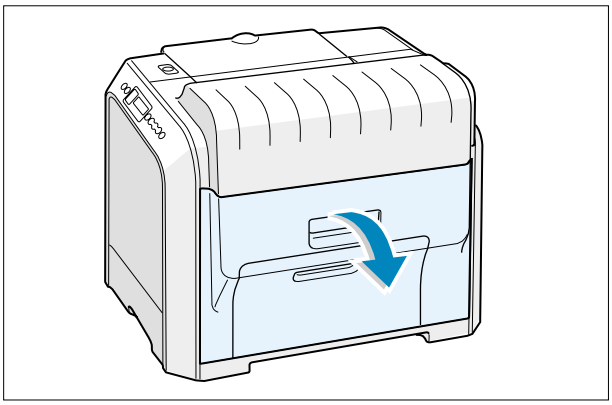
By selecting the correct paper types, most paper jams can be avoided. If a paper jam occurs, follow the steps outlined below:

- Ensure that the adjustable guides are positioned correctly.
- Do not overload the tray. Ensure that the paper is below the paper capacity mark on the right inside the tray.

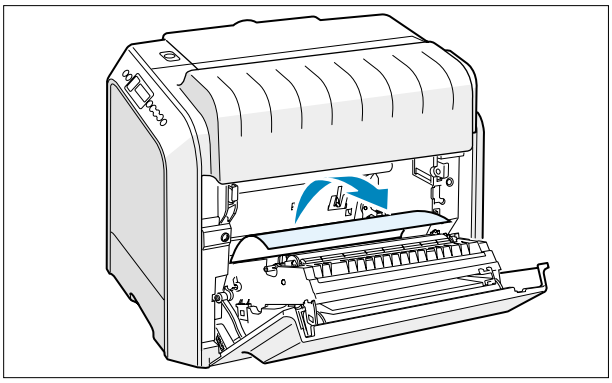
7.2.3 Jam 0 In Tray 1

If paper is jammed in the paper feed area,'Jam0 In Tray1 ' appears on the display.

1. Using the handle open the right cover.



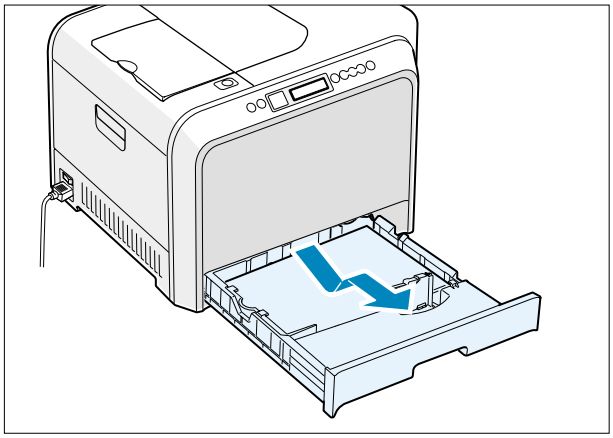
2. Carefully remove the misfed paper in the direction as shown.



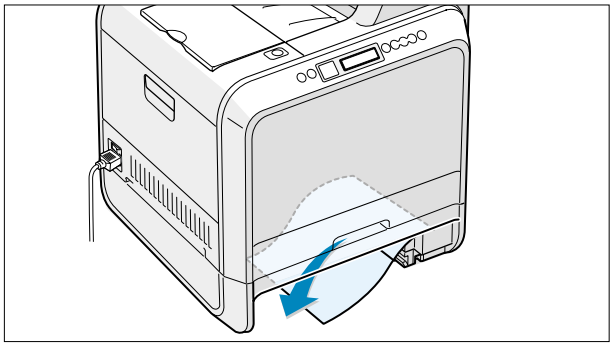
3. Close the right cover .The printer resumes printing.

If there is any resistance, and the paper does not move immediately when you pull, stop pulling and go to step 4.

4. Pull the tray open. After you pull it all the way out lift up the front part of the tray slightly to release the tray from the machine.



5. Remove the jammed paper by gently pulling it straight out.



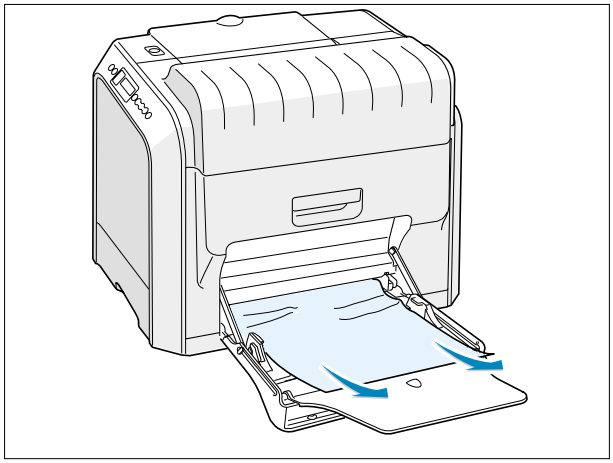
6. To replace the tray lower the rear edge, align it to the slot and slide it into the printer.

7. Close the right cover .The printer resumes printing.

7.2.4 Jam 0 in MP Tray 1

'Jam0 In MP Tray' appears on the display when you are printing using the Multi-purpose Tray and the printer detects either there is no paper or the paper is improperly loaded.

1. If the paper is not feeding properly pull the paper out of the machine..

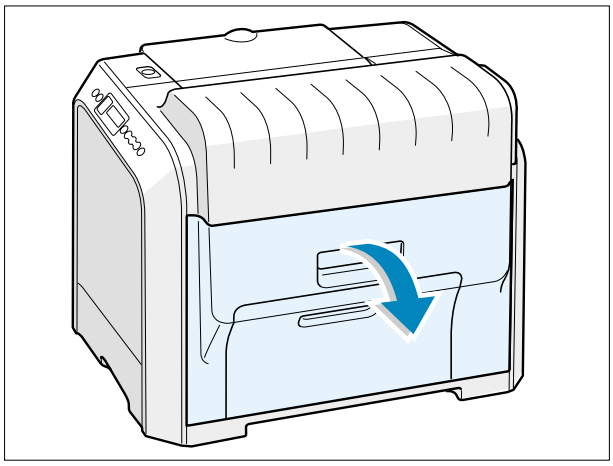


2. To resume printing, open and close the right cover.

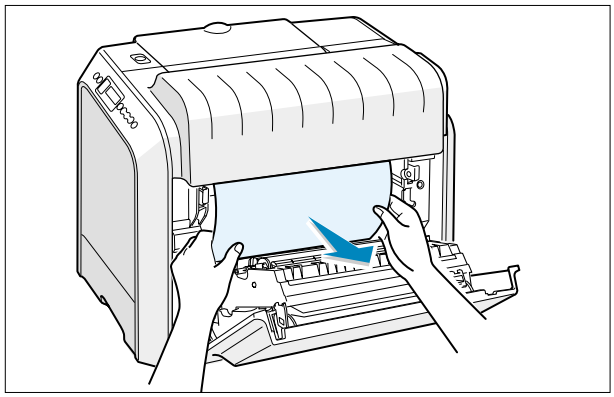
7.2.5 Jam Inside Printer : Jam1

If paper is jammed inside the printer 'Jam Inside Printer' appears on the display.

1. Using the handle open the right cover.



2. Remove the jammed paper in the direction shown. To avoid the paper tearing pull it out gently and slowly.



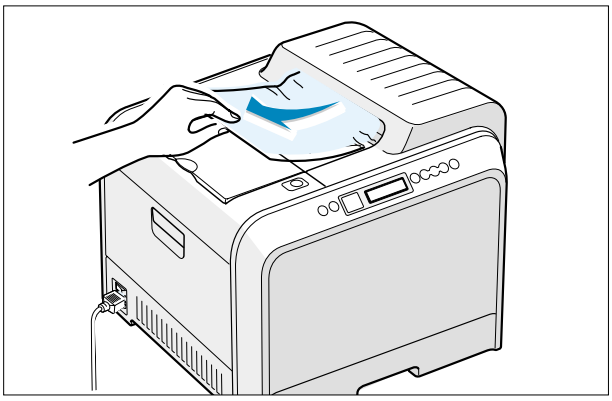
NOTE : If the paper tears make sure that all of the paper fragments are removed from the printer.

3.Close the right cover. The printer resumes printing.

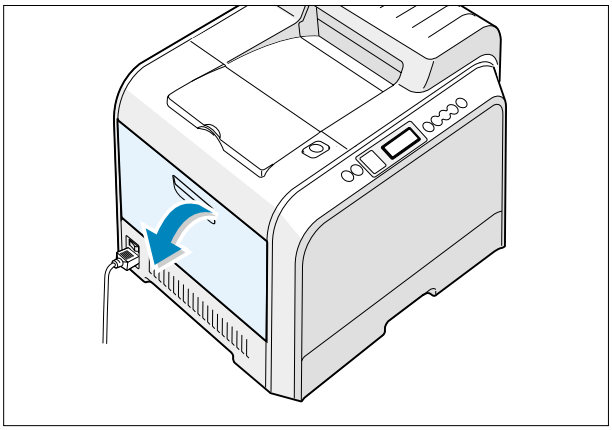
7.2.6 Jam In Exit Area : Jam2

If paper is jammed in the paper exit area 'Jam In Exit Area ' appears on the display.

1. If a long portion of the paper is visible pull it straight out. If not continue to step 2.

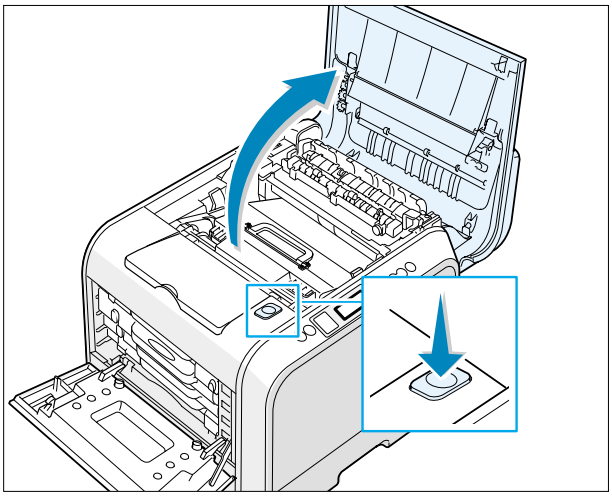


2. Using the handle open the left cover completely.

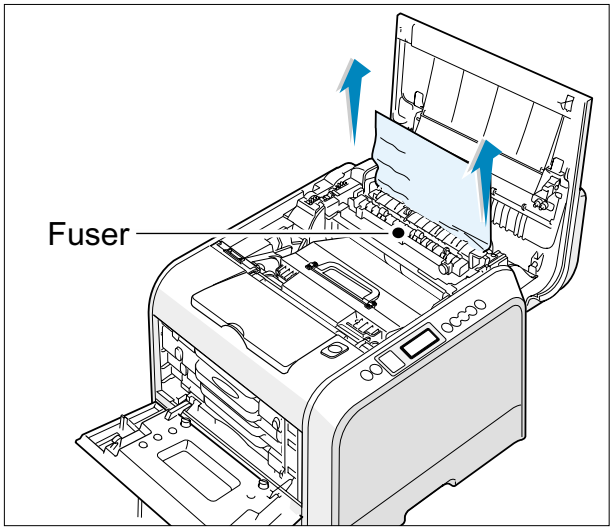


CAUTION : If the left cover is not completely open the top cover release button will not press.

3. Press the top cover release button to unlatch the top cover and open it all the way.

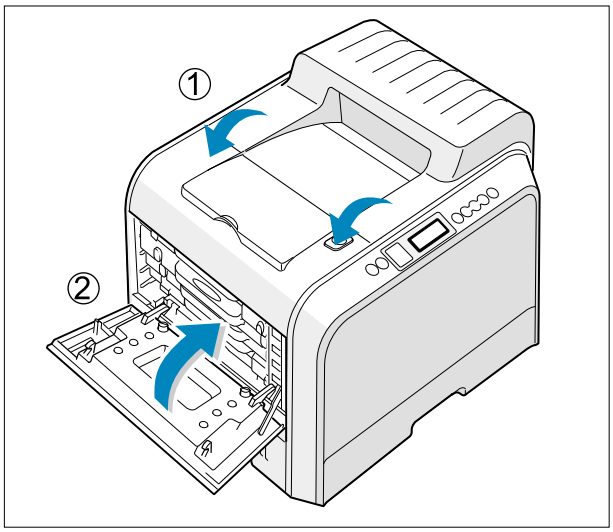


4. Carefully take the jammed paper out of the printer.



CAUTION : Do not touch the fuser it is hot and could cause burns! The fuser's operating temperature is 180 °C (356 °F). Take care when removing paper from the machine.

5. Close the top cover and the left cover firmly



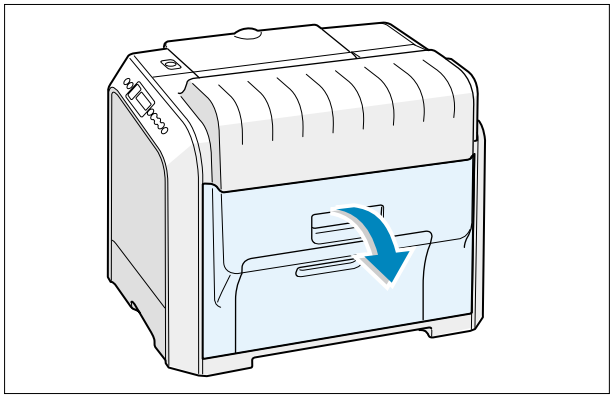
CAUTION : Do not try to close the top cover with the left cover closed. This may cause damage to the machine.

6. Open and close the right cover to resume printing.

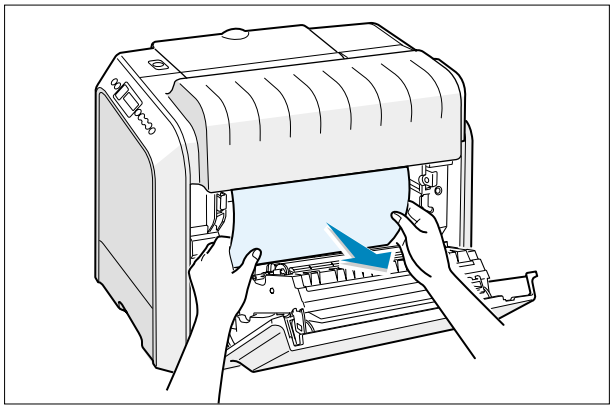
7.2.7 Jam In Duplex Path : Jam Duplex

If paper is jammed in the duplex area 'Jam In Duplex Path' appears on the display.

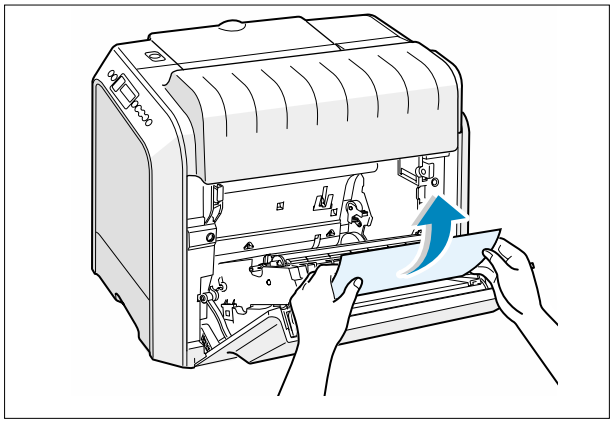
1. Using the handle open the right cover.



2. Locate the jammed paper and then pull it out gently and slowly to avoid the paper tearing. Close the right cover. The printer resumes printing.



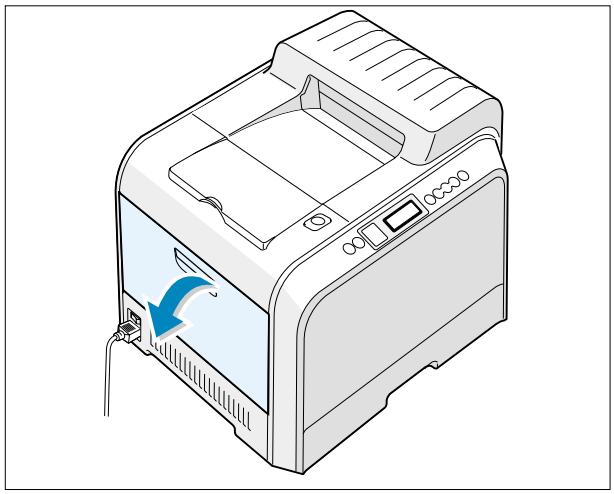
or



Note : If the paper tears make sure that all of the paper fragments are removed from the printer.

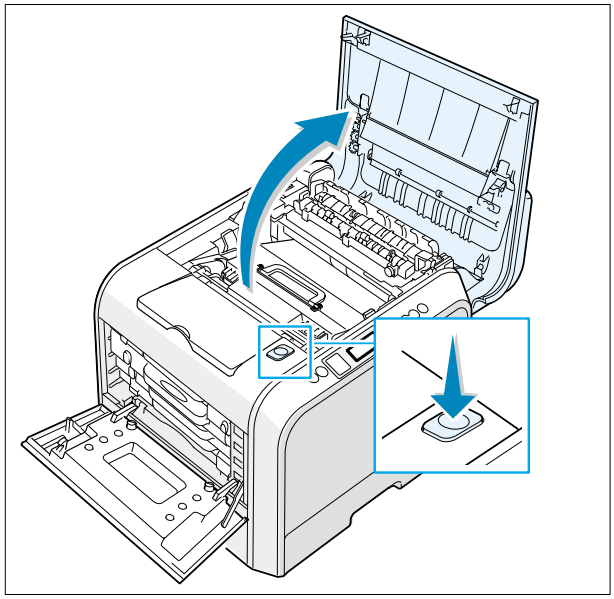
3. If you cannot find the jammed paper or there is any resistance removing the paper go to step 4.

4. Using the handle open the left cover completely.

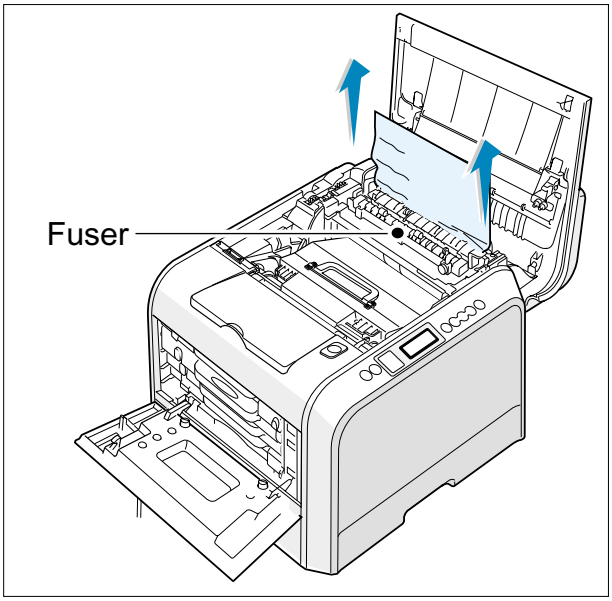


CAUTION : If the left cover is not completely open the top cover release button will not press.

5. Press the top cover release button to unlatch the top cover and open it all the way.

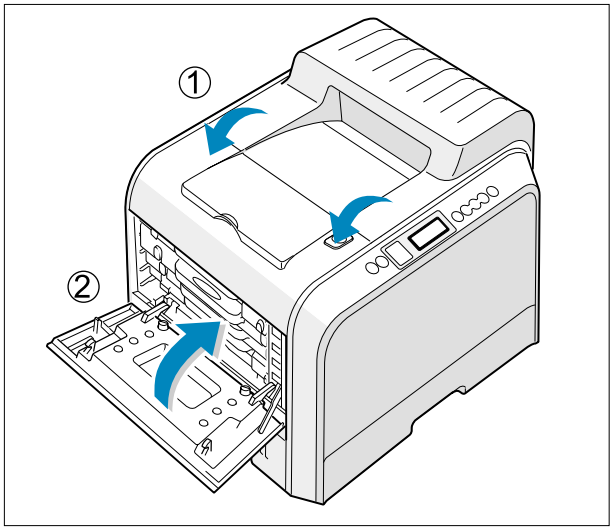


6. Locate the jammed paper and then carefully take it out of the printer.



CAUTION : Do not touch the fuser it is hot and could cause burns! The fuser's operating temperature is 180 °C (356 °F). Take care when removing paper from the machine.

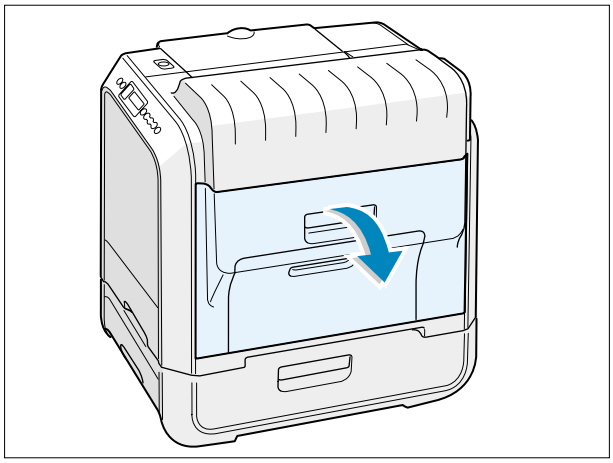
7. Close the top cover and the left cover firmly



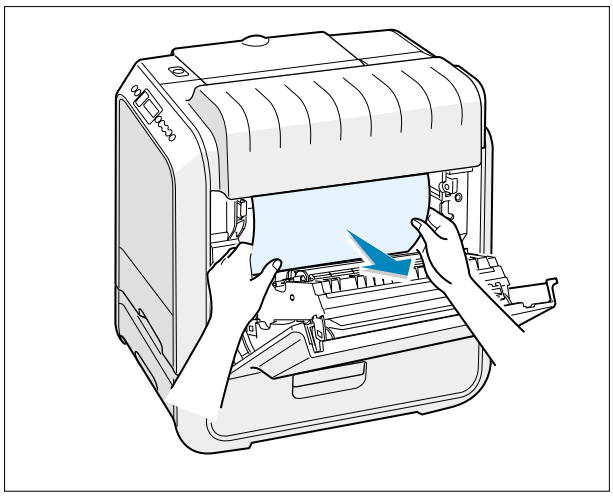
CAUTION : Do not try to close the top cover with the left cover closed. This may cause damage to the machine.

7.2.8 Jam In the Optional Second Tray

1. Using the handle open the right cover.

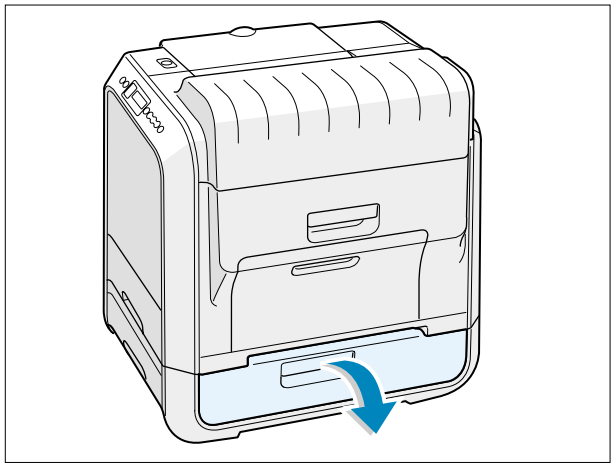


2. Remove the jammed paper in the direction shown. To avoid the paper tearing pull it out gently and slowly.

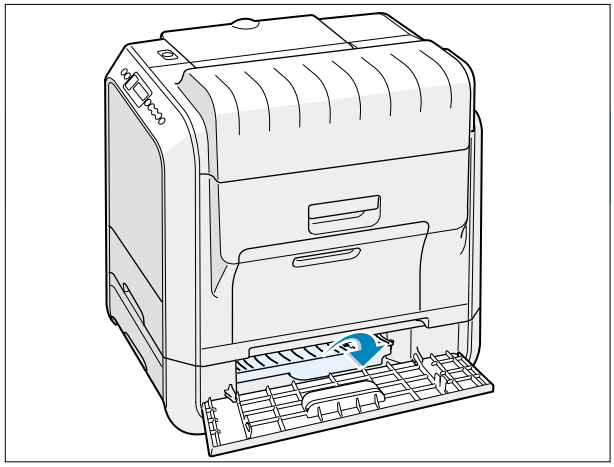


3. Close the right cover. The printer resumes printing.

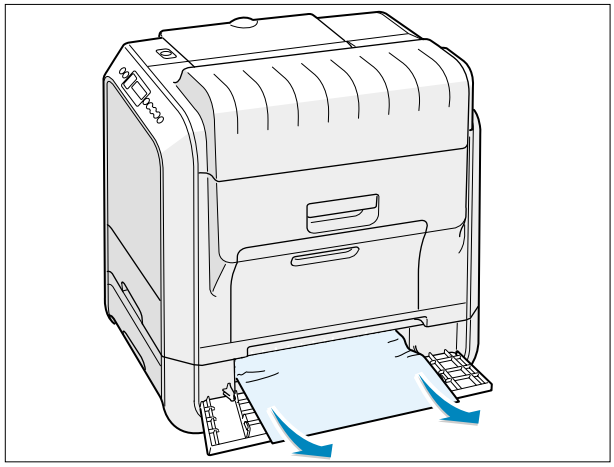
4. If you cannot find the jammed paper in the machine open the Tray2 outer jam cover.



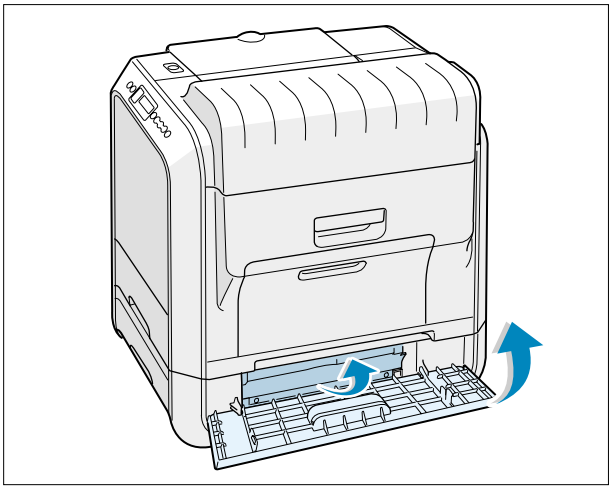
5. Open the inner cover of Tray 2.



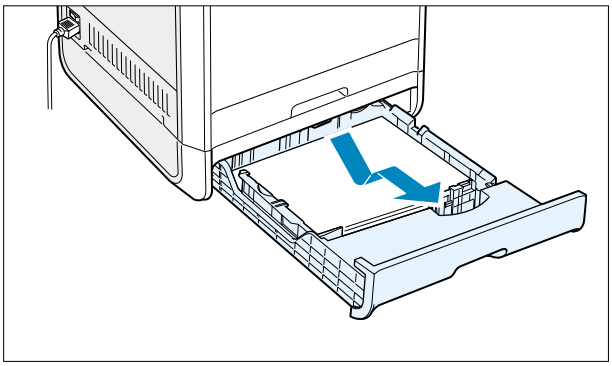
6. Pull the jammed paper out in the direction shown. To avoid the paper tearing pull it out gently and slowly. If there is any resistance, and paper does not move immediately when you pull, stop pulling and continue to step 8.



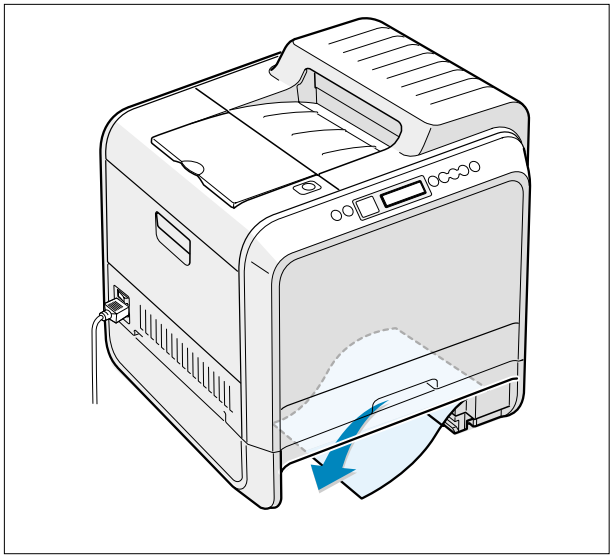
7. Close the two jam covers. Go to step 11.



8.Pull the optional tray, Tray 2, out of the printer.



9. If you see the jammed paper remove the paper from the machine by gently pulling it straight out.



10. Slide the tray back into the printer and close the two jam covers.

11. Open and close the right cover. The printer resumes printing.

7.3 Sample Pattern

This product provides several printable test patterns for maintenance purposes. These patterns can be used to aid the diagnosis of print quality problems.

7.3.1 Printing a Demo Page

Print a demo page to make sure that the printer is operating correctly.

1. Press the **Menu** button ( ) on the control panel until you see “Information ” on the bottom line of the display..
2. Press the **Enter** button ( ) to access the Menu.
3. Press the scroll button (or) until you see “Demo Page ” on the bottom line.
4. Press the **Enter** button ( ) .

A demo page showing the printer ’s features and capabilities prints out.

7.3.2 Printing a Configuration Page

Print a demo page to make sure that the printer is operating correctly.

1. Press the **Menu** button ( ) on the control panel until you see “Information ” on the bottom line of the display..
2. Press the **Enter** button ( ) to access the Menu.
3. Press the scroll button (or) until you see “Configuration ” on the bottom line.
4. Press the **Enter** button ( ) .

A demo page showing the printer ’s features and capabilities prints out.

7.4 Checking the Remaining Toner and Others

7.4.1 Checking the Remaining Toner

You can check the level of toner left in each cartridge.

1. In ready mode press the Menu button (Menu) on the control panel several times until you see 'Setup ' on the bottom line of the display.
2 Press the Enter button (Enter) to access the menu.
3 Press the scroll button (◀ or ▶) until 'Maintenance ' displays on the bottom line.
4 Press the Enter button (Enter)
5 When 'Check Toner ' displays on the bottom line,,press the Enter button (Enter) .
6 Press the scroll button (◀ or ▶) until the color of the toner cartridge you want to check displays on the bottom line.
7 Press the Enter button (Enter) The display shows the percentage of the remaining toner.
8. Press the Upper Level button to return to step 6 and select a different cartridge.
9. To return to the Ready condition press the Upper Level button several times until 'Ready' appears in the display

7.4.2 Checking the Remaining Others

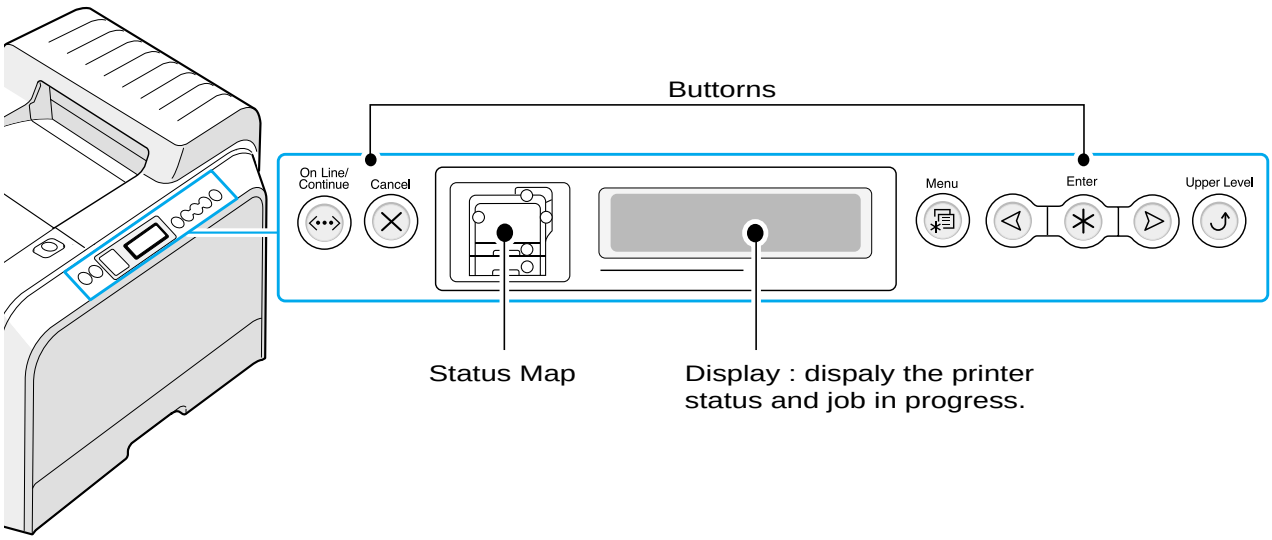
You can check the level of each item.

1. In ready mode press the Menu button (Menu) on the control panel everal times until you see 'Setup ' on the bottom line of the display.
2 Press the Enter button (Enter) to access the menu.
3 Press the scroll button (◀ or ▶) until 'Maintenance ' displays on the bottom line.
4 Press the Enter button (Enter)
5 When 'Check Others ' displays on the bottom line,,press the Enter button (Enter) .
6 Press the scroll button (◀ or ▶) until the item you want to check displays on the bottom line.
7 Press the Enter button (Enter)
8. Press the scroll button to display either 'Image Count' or 'Reset'
9a. Choose 'Reset' and press enter to reset the counter after replacing a consumable item
or
9b Choose Image count to display the counter.
10. Press the Upper Level button to return to step 7 and select a different choice or press it a second time to return to step 6 and choose a different item.
11. To return to the Ready condition press the Upper Level button several times until 'Ready' appears in the display.

7.4 Understanding the Control Panel

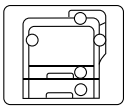
The control panel on the top right side of your printer has a display and seven buttons.

7.4.1 Display



Message	Description
Ready	•The printer is on-line and ready to print. •If you press On Line/Continue ,the printer switches to off-line.
Offline	•The printer is off-line and cannot print. •If you press On Line/Continue ,the printer switches to on-line.
Processing...	•The printer is printing. •If you want to cancel printing,press Cancel .
Sleeping...	•The printer is in Power Save mode, using less power.When a print job is received from the computer or if any button is pressed,the printer switches to on-line. •To deactivate the Power Save mode or change the power-saving time.

7.4.2 Buttons

<table>
<tr><th>Message</th><th colspan="3">Description</th></tr>
<tr><td> 
Status map</td><td colspan="3">When an error occurs,a lamp turns on at the corresponding location on the Status map.An error message appears on the display so that you can locate the error.</td></tr>
<tr><td rowspan="5">On Line/ Continue
 </td><td colspan="3">•Press to switch between on-line and off-line.
•In menu mode,press to return to ready mode.
The color of the On Line/Continue button indicates the status of the printer.</td></tr>
<tr><td rowspan="2">Green</td><td>On</td><td>The printer is on-line and can receive data from the computer.</td></tr>
<tr><td>Blanking</td><td>• When the backlight blinks slowly,the printer is receiving data from the computer.
• When the backlight blinks quickly,the printer is receiving and printing data.</td></tr>
<tr><td rowspan="2">Orange</td><td>On</td><td>The printer stops printing due to a major error.Check the display message.</td></tr>
<tr><td>Blanking</td><td>A minor error has occured and the printer is waiting for the error to be cleared.Check the display message.When the problem is cleared,the printer resumes printing.If you want to ignore this warning,press this button.</td></tr>
<tr><td>Off</td><td colspan="2">•The printer is off-line and cannot print.
•The printer is in Power Save mode. When data is received,it switches to on-line.</td></tr>
<tr><td>Menu
 </td><td colspan="3">• Press to enter menu mode.
• In menu mode,press to scroll through the menus.</td></tr>
<tr><td>Enter
 </td><td colspan="3">In menu mode,press to select the displayed submenu item or confirm the changed setting.The selected item is marked with an *.</td></tr>
<tr><td> </td><td colspan="3">In menu mode,press to scroll through submenu items or setting options.Pressing • moves you to the next option and pressing • sends you back to the previous option.</td></tr>
<tr><td>Cancel
 </td><td colspan="3">• Press to cancel the current print job.
• In menu mode,press to return to ready mode.</td></tr>
<tr><td>Upper Level
 </td><td colspan="3">In menu mode,press to go back to the upper menu level.</td></tr>
</table>

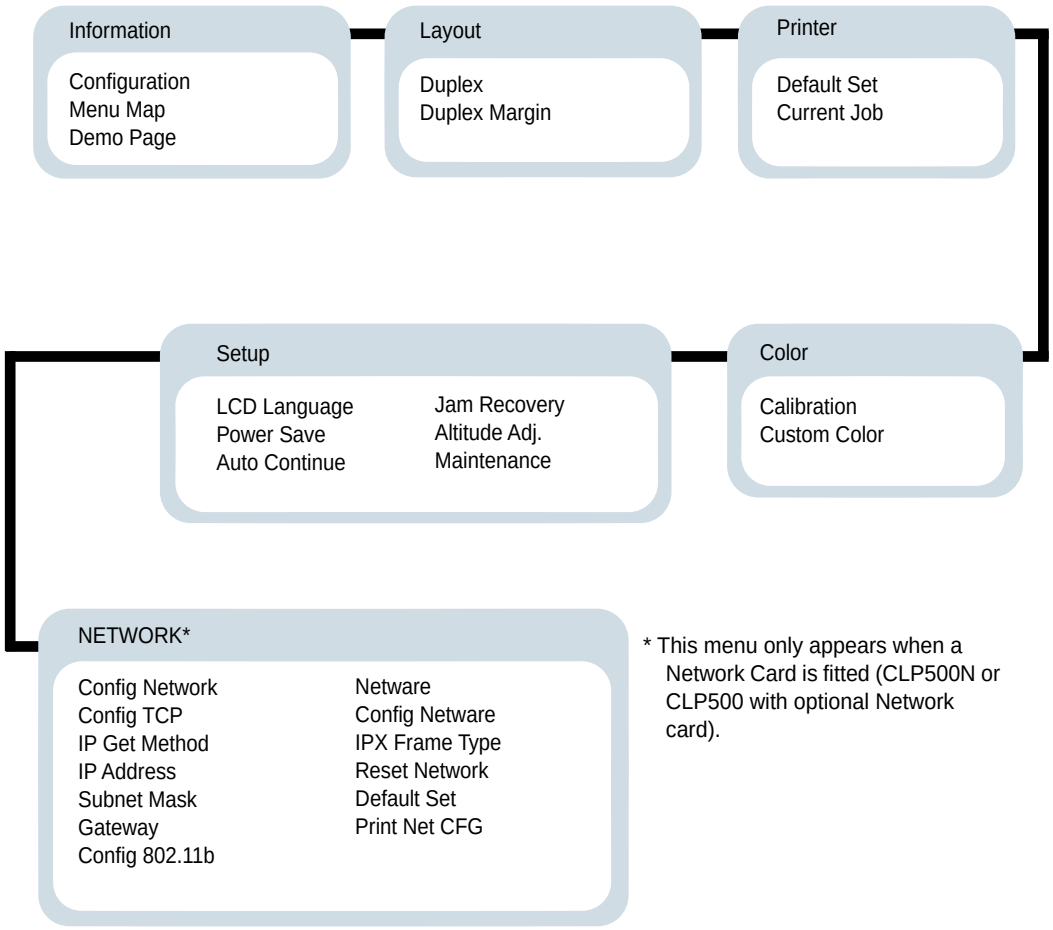
7.4.3 Using Control Panel Menus

A number of menus are available to make it easy for you to change the printer settings.

You can configure your printer from the printer's control panel.You can also use the control panel menus while the printer is in use.

1. In ready mode press the Menu button ( ) until you see the menu you want on the bottom line of the display.
2. Press the Enter button ( ) to access the menu.
3. Press the scroll button (or) until the menu item you want displays on the bottom line.
4. Press the Enter button ( ) to confirm the selected item.
5. If the menu item has submenus, repeat steps 3 and 4.
6. Press the scroll button (or) until the setting option you want displays on the bottom line or enter the required value.
7. Press the Enter button ( ) to save your input or selection.
   - An asterisk (*) appears next to the selection on the display, indicating that it is now the default.
8. To exit the menu, press the Upper Level button ( ) repeatedly, or the Cancel button ( ).
   - After 60 seconds of inactivity (no key has been pressed), the printer automatically returns to ready mode.

NOTE: *Print settings made from the printer driver override the settings on the control panel.*



* This menu only appears when a Network Card is fitted (CLP500N or CLP500 with optional Network card).

7.5 Periodic Defective Image

If an image defects appears at regular intervals on the printed-paper, it is due to a faulty or damaged roller. Refer to the table below and check the condition of the appropriate roller.

No	Roller	Defective image	Typical defect
1	OPC Drum	same position in each page	white spot on black image or black spot
2	Charge Roller	43.96 mm	black spot
3	Supply Roller	26.02 mm	light or dark horizontal image band
4	Developing Roller	29.28 mm	horizontal image band
5	ITB(T1)	same position in each page	black spot
6	Transfer Roller(T2)	75.36 mm	ghost
7	Heat Roller	109.9 mm	Black spot and ghost, printing backside pollution

7.6 How to use EDC (Engine Diagnostic Control) Mode

7.6.1 EDC Establishment

EDC Mode is feature that allows the engineer to check the condition of the print engine. It can check the operating condition of the motors, sensors, solenoids and clutches, measure the High Voltage from the HVPS and check the operation of the fuser and LSU.

7.6.1.1 How to enter the EDC Mode

a) Turn on the printer while pressing the "Enter" key. Hold the key until 'Select Test mode' appears in the display.

b) Press the direction key until "<EDC Test>" is displayed.

c) Press the "Enter" key.

d) <Enter Access Key> appears in the display. Press the "Cancel" key twice.

***Note**. There are a number of other test modes. Only EDC Test and Panel Tests should be used by service engineers, all other functions are for factory use only.*

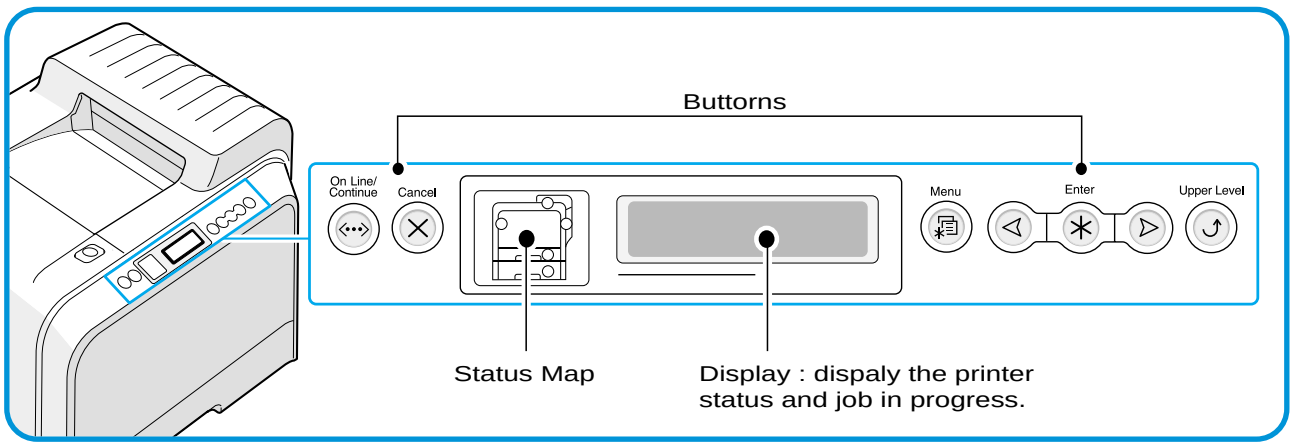
7.6.1.2 Functions of the keys on the Panel and how to use them.

Key	Function	Description
On Line		Not used
Cancel		Not used
Menu	Menu	Display Top Menu of EDC Mode
Left/Right Arrow	Find Menu	Move Menu
Enter	Run/Select	Run the Function / Select Menu
Upper Menu	Stop/Move	Stop the selected Function or go to Upper Menu.

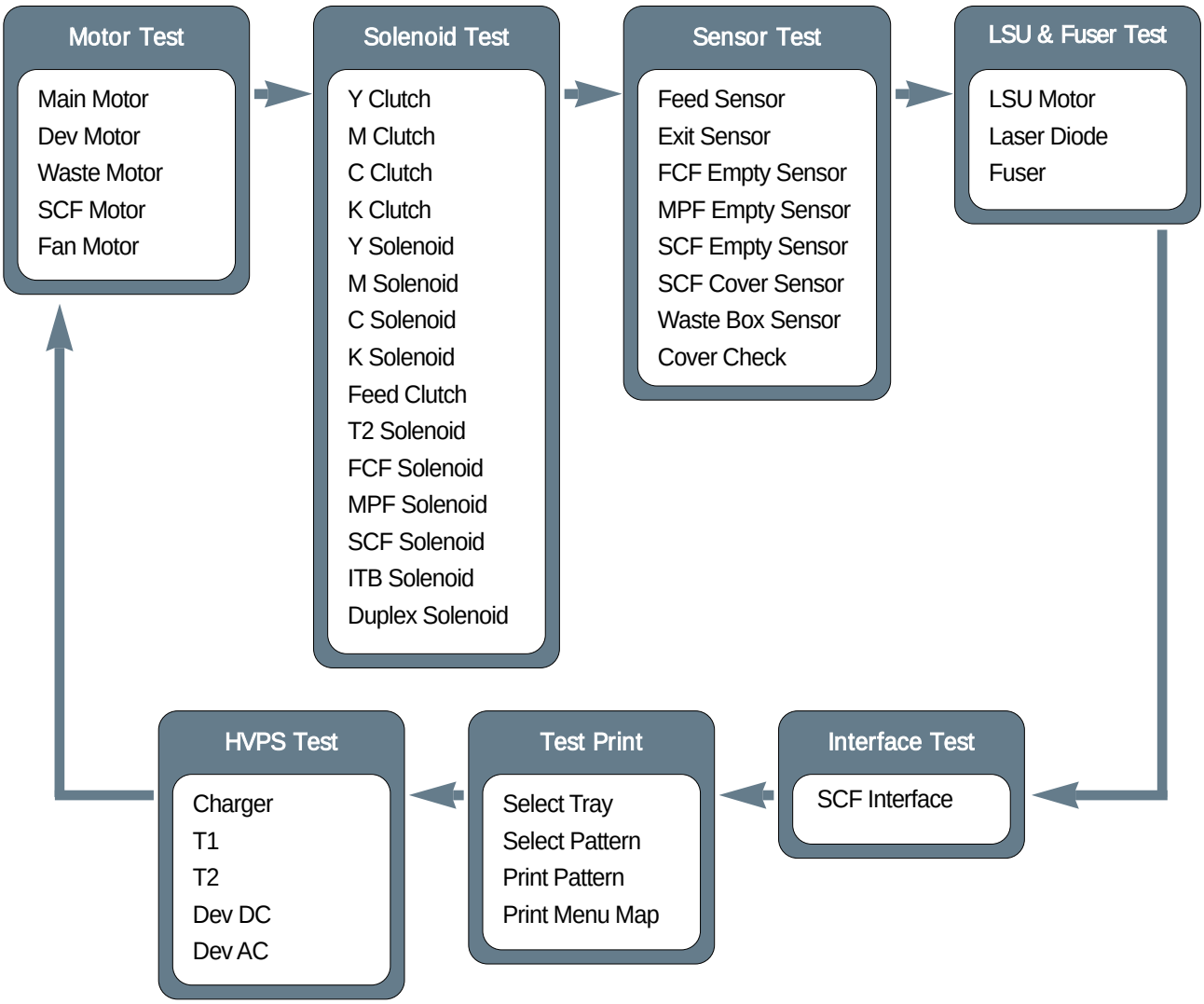
7.6.1.3 LCD Function and Directions

Upper Line : Upper Line messages mainly show the current test menu or sub-menu.
[Main Menu] or [Function] is displayed.

Lower Line : Lower Line messages mainly the current test and status.



7.6.2 EDC Whole Menu



7.6.2.1 Motor Test

This function allows the operation of the various motors to be checked.

<How to operate>

a) Press the "<" or ">" key until "Motor Test" is displayed.
b) Press the "Enter" key to select this function.
c) Press the "<" or ">" key until you see the name of the motor you wish to test.
d) Press the "Enter" key to run the test. The test is stopped by pressing the "Upper Level" key.
e) Pressing the "Upper Level" key when the test is already stopped will return to step 'c' above.
f) Pressing the "Upper Level" key again will return to the EDC main menu.

Item	Description	Remarks
Main Motor	Operates Main Motor	Displays "Succeed" if Motor Lock Signal is Normal, "Failed" otherwise.
Dev Motor	Operates Dev Motor	Displays "Succeed" if Motor Lock Signal is Normal, "Failed" otherwise.
Waste Motor	Operates Waste Motor	Display motor status - "On" or "Off".
SCF Motor	Operates SCF Motor	Display motor status - "On" or "Off".
Fan Motor	Operates Fan Motor	Display motor status - "On" or "Off".

7.6.2.2 Solenoid Test

This function allows the operation of various solenoids and clutches to be checked.

<How to operate>

a) Press the "<" or ">" key until "Solenoid Test" is displayed.
b) Press the "Enter" key to select this function.
c) Press the "<" or ">" key until you see the name of the clutch or solenoid you wish to test.
d) Press the "Enter" key to run the test. The test is stopped by pressing the "Upper Level" key.
e) Pressing the "Upper Level" key when the test is already stopped will return to step 'c' above.
f) Pressing the "Upper Level" key again will return to the EDC main menu.

Item	Description	Remarks
Y Clutch	Operates Yellow Developer Clutch	Displays clutch status - "On" or "Off".
M Clutch	Operates Magenta Developer Clutch	Displays clutch status - "On" or "Off".
C Clutch	Operates Developer Clutch	Displays clutch status - "On" or "Off".
K Clutch	Operates Black Developer Clutch	Displays clutch status - "On" or "Off".
Y Solenoid	Operates Yellow Developer Solenoid	Displays solenoid status - "On" or "Off".
M Solenoid	Operates Magenta Developer Solenoid	Displays solenoid status - "On" or "Off".
C Solenoid	Operates Cyan Developer Solenoid	Displays solenoid status - "On" or "Off".
K Solenoid	Operates Black Developer Solenoid	Displays solenoid status - "On" or "Off".
Feed Clutch	Operates Feed Clutch	Displays clutch status - "On" or "Off".
T2 Solenoid	Operates T2 Clutch	Displays solenoid status - "On" or "Off".
FCF Solenoid	Operates FCF pick-up	Displays solenoid status - "On" or "Off".
MPF Solenoid	Operates MPF pick-up	Displays solenoid status - "On" or "Off".
SCF Solenoid	Operates SCF pick-up (Only if SCF is fitted)	Displays solenoid status - "On" or "Off".
ITB Solenoid	Operates ITB cleaning clutch	Displays solenoid status - "On" or "Off".
Duplex Solenoid	OperateS Duplex Solenoid	Displays solenoid status - "On" or "Off".

7.6.2.3 Sensor Test

This function allows the operation of various sensors to be checked

<How to operate>

a) Press the "<" or ">" key until "Sensor Test" is displayed.

b) Press the "Enter" key to select this function.

c) Press the "<" or ">" key until you see the name of the sensor you wish to test.

d) Press the "Enter" key to display the sensor status. If the sensor actuator is moved the displayed status will change to reflect the new sensor position..

e) Pressing the "Upper Level" key will return to step 'c' above.

f) Pressing the "Upper Level" key again will return to the EDC main menu.

Item	Description	LCD indication
Feed	Feed Sensor Status	"With Paper" is displayed when Paper is detected, "Without paper" is displayed when paper is not detected.
Exit	Exit Sensor Status	"With Paper" is displayed when Paper is detected, "Without paper" is displayed when paper is not detected.
FCF Empty	FCF Empty Sensor status	"With Paper" is displayed when Paper is detected, "Without paper" is displayed when paper is not detected.
MPF Empty	MPF Empty Sensor Status	"With Paper" is displayed when Paper is detected, "Without paper" is displayed when paper is not detected.
SCF Empty	SCF Empty Sensor Status	"With Paper" is displayed when Paper is detected, "Without paper" is displayed when paper is not detected.
SCF Cover	SCF Cover Sensor Status	"Cover Opened" or "Cover Closed" is displayed.
Waste Box	Waste Toner Sensor Status	"Not Installed" is displayed when either the Waste toner tank is not installed or it is full. "Installed" is displayed when the Waste Toner tank is installed and is not full.
Cover	Left or Right Cover Sensor Status	"Cover Opened" or "Cover Closed" is displayed.

7.6.2.4 LSU & Fuser Test

This function allows the Fuser, LSU Motor and Laser Diode to be tested.

<How to operate>

a) Press the "<" or ">" key until "LSU & Fuser Test" is displayed.
b) Press the "Enter" key to select this function.
c) Press the "<" or ">" key until you see the name of part you wish to test.
d) Press the "Enter" key to run the test. The test is stopped by pressing the "Upper Level" key.
e) Pressing the "Upper Level" key when the test is already stopped will return to step 'c' above.
f) Pressing the "Upper Level" key again will return to the EDC main menu.

Item	Description	Remarks
LSU Motor	Operates LSU Motor	The LSU motor must come into lock within 6 seconds. After 7 secs the status is displayed either: "Succeed" if lock is successful within the time limit "Failed" if lock is not achieved
LD	Operates Laser Diode	
Fuser	Heats the Fuser	Repetitive cycle (10secs) - Lamp on for 500msec then off again.

- The LSU Motor Lock Time is a maximum 15 seconds depending on the environment. It may take over 15 seconds until the <Succeed> or <Failed> message is displayed.
- For safety - after printing a test pattern if you need to return to EDC mode turn the printer off and then re-enter EDC.

7.6.2.5 Interface Test

This function tests communications between the Main PBA controller and the SCF controller.

<How to operate>

a) Press the "<" or ">" key until "Interface Test" is displayed.
b) Press the "Enter" key to select and run this function.
c) "Succeed" or "Failed" is displayed..
d) Pressing the "Upper Level" key again will return to the EDC main menu.

7.6.2.6 Test Print

This function allows you to test the overall function of the print engine. You can select either a 4 * 4 color bar pattern or a solid color pattern. If the solid pattern is selected 4 pages are printed - one for each color. You can also print the EDC Mode Menu Map.

<How to operate>

a) Press the "<" or ">" key until "Test Print" is displayed.

b) Press the "Enter" key to select this function.

c) Press the "<" or ">" key until "Select Tray" is displayed.

d) Press the "Enter" key to select this function.

e) Press the "<" or ">" key until required tray is displayed and then press the "Enter Key"

f) Press the "Upper Level" key.

g) Press the "<" or ">" key until "Select Pattern" is displayed.

h Press the "Enter" key to select this function.

i) Press the "<" or ">" key until required pattern is displayed and then press the "Enter Key"

j) Press the "Upper Level" key.

k) Press the "<" or ">" key until "Print Pattern" is displayed.

l) Press the "Enter" key to print the pattern.

For safety - after printing a test pattern if you need to return to EDC mode turn the printer off and then re-enter EDC Mode by turning power on whilst holding in the "Enter" key.

7.6.2.7 HVPS Test

This function allows the HVPS to be tested

<How to operate>

a) Press the "<" or ">" key until "HVPS Test" is displayed.
b) Press the "Enter" key to select this function.
c) Press the "<" or ">" key until you see the name of the voltage you wish to test.
d) Press the "Enter" key to select the test.
e) Press the "<" or ">" key to select the appropriate Duty Cycle and press "Enter" to start the test
The test is stopped by pressing the "Upper Level" key.
The display shows the acceptable range for this setting (column 4 in the table below)
The mid range (nominal) voltage is shown in column 3 in the table below.
e) Pressing the "Upper Level" key when the test is already stopped will return to step 'c' above.
f) Pressing the "Upper Level" key again will return to the EDC main menu.

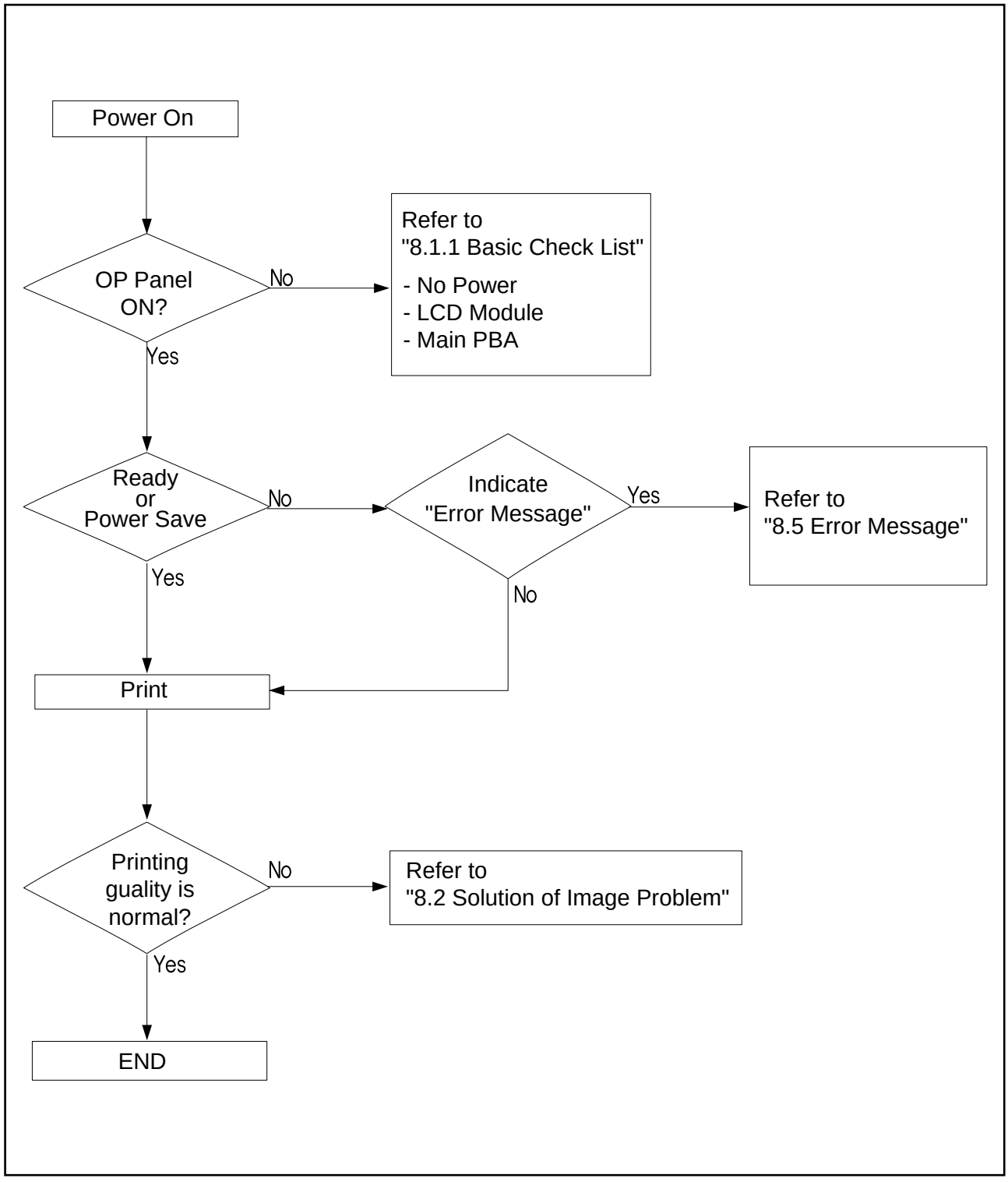
Item	Description	Lower Menu & Input Voltage	LCD Indication
Charger	Supply Voltage to the Charger	Duty 50% : -1262V Duty 80% : -2037V	Duty 50% : -1224V ~ -1300V Duty 80% : -1976V ~ -2098V
T1	Supply Voltage to T1	Duty 50% : 1174V Duty 90% : 2080V	Duty 50% : 1139V ~ 1209V Duty 90% : 2018V ~ 2142V
T2	Supply Voltage to T2	Duty 30% : 1800V Duty 80% : 4540V Reverse Bias : -900V	Duty 30% : 1746V ~ 1854V Duty 80% : 4404V ~ 4676 Reverse Bias : -800V ~1200V
Dev DC	Supply DC Voltage to Dev	Duty 45% : -370V	Duty 45% : -359V ~ -381V
Dev AC	Supply AC Voltage to Dev	Duty 35% : -2200V	Duty 35% : -2134V ~ -2266V

* The allowed tolerance is commonly +/- 3%, this is the value isplayed, in case of "Dev AC", it is the value of Vpp.

8. Chapter 8. Troubleshooting

8.1 Procedure of Checking the Symptoms

Before attempting to repair the printer first obtain a detailed description of the problem from the customer.



8.1.1 Basic Check List

1. Check the Power.

• Does "Warming Up" appear on the display?
--> If not check power cable, switch or SMPS. (see section 8.1.2 below)
--> Does the wall socket work?
• Do the Motors or other components initialize (listen for main motor, fan and LSU sounds)?
--> If not or there are none of the normal startup sounds check cable, switch or SMPS.
--> Does the wall socket work?

2. Check the LCD Panel.

• Is there any display at all?
--> If not check power cable, switch or SMPS. (see section 8.1.2 below)
--> Does the wall socket work?
• Is the display a meaningful message (are there any broken or badly formed characters)?
--> Check the main PBA and cable harness.
• Is the message on the LCD Panel a standard error message?
--> Refer to section 8.4 or 8.5 (Page 8-14 or 8-18).

3. Check the Paper Path

• Is there a Paper Jam?
--> Remove any paper fragments caught in the paper path.
--> Refer to section 8.3 (Page 8-10).
• Paper Jam occurs repeatedly at a specific point in the Paper Path
--> Dismantle the machine and carefully inspect the region where the jam occurs.
(Especially, check if paper fragments are caught in the Fuser

4. Print the Information Page (Configuration).

• Is there a problem?
--> If there is an error see section 2) or 3) above.
• Try printing a test page from a computer.
--> If there is an error check cables and driver installation.

5. Check the Print Quality.

•Is there are a Print Quality Problem?
--> Refer to section 8.2 (Page 8-5).

6. Check consumables (toner etc.).

•Using the keys print the Information Page.
--> Refer to 8.1.4 below and to section 3.5 (Page 3-3) for expected life of various consumable parts, compare this with the figures printed and replace as required

8.1.2 Initial Inspection

1. Check Power part

1. The printer does not work no matter how long you wait.
   A. Is the Power Switch (printer and wall socket) turned on ?
   B. Is the Power Cord connected to the printer correctly ?
   C. Is the Power cord connected to the wall socket correctly ?
   D. Is wall socket working ?
   E. Is the unit rated at the same voltage as the supply ?
2. Does the Fan work when power is turned on?
   A. Check the connectors on the SMPS.
   B. Check the fuses in the SMPS.
   C. Check any error message display on the LCD panel and refer to the troubleshooting section 8.4 or 8.5 (Page 8-14 or 8-18).

2. Check the Installation Environment.

1. Ensure the installation surface is flat, level and free from vibration.
   If necessary move the printer.
2. Ensure that the temperature and humidity of the surroundings are within specification
   If necessary move the printer.
3. Ensure that the printer is positioned away from any air conditioning or other heating or cooling equipment. Also ensure that is not positioned in a direct draft from any air conditioning, fan or open window.
   If necessary move the printer.
4. Ensure the printer is not positioned in direct sunlight.
   If it is unavoidable use a curtain to shade the printer.
5. Ensure the printer is installed in a clean dust free environment.
   Move the printer to clean area if necessary.
6. Some industrial or cleaning processes give of fumes which can affect the printer.
   Move the printer away from this type of air pollution

3. Check paper type.

1. Use only paper which is of a suitable quality, weight and size?
   See the user guide.

4. Check the overall condition of the printer

1. Is the printer properly maintained ?
   Clean the Paper Transport Passages.
   Any rollers with dirty surfaces should be cleaned or replaced.

8.1.3 Check the length of life of components

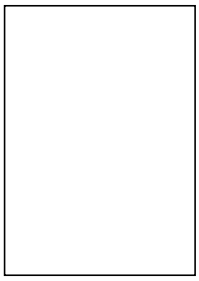
The length of life of consumable components is displayed either by operating time (% of life) or quantity of output. The printer will not work if any of these parts have exceeded there expected life. When a user replaces any of these consumable parts they must reset the appropriate counter using the maintenance menus (see section 7.4, page 7-13).

The printer calculates the working time and quantity of output for each component and saves this information.

1. The Working time for each component (OPC Drum, Toner Cartridge, Image Transfer Belt, Fuser Unit) is measured every 30 seconds when the Transport Motor and Fusing Contact Motor are active.
2. In order to calculate the number of images printed 1 is added to the appropriate counter every 30 seconds. The amount of waste toner is calculated based on the number of pixels in the image.
3. When the user replaces any of the consumable parts and resets the appropriate counter it starts again from 0.

8.2 Solution of Image Problem

- No Image

	Cause	Sequence of Treatment
	Driver Installation Problem.	Try printing a Demo Page. Check that the operating system driver was installed correctly.
	Toner cartridge contacts dirty or not making good contact or empty Toner Cartridge (when printing a single color image)	Check and clean the toner contacts. Re-seat the Toner Cartridge. Replace the Toner cartridge
	ITB cartridge contacts dirty or not making good contact or Faulty ITB unit	Check and clean the ITB contacts. Re-seat the ITB Unit. Replace ITB Unit
	LSU cable harness plugs not fitted properly or faulty LSU.	Check the connectors on the LSU Unit and main PWA are properly inserted. Replace the LSU Unit, cables or MAIN PWA as required
	Toner transfer problem	Check all HV contacts and cables. Replace the HVPS.

- Completely Black Image

	Cause	Sequence of Treatment
	OPC Drum BIAS contacts dirty or not making good contact.	Clean Drum contacts.. Replace the OPC Drum.
	Charge Voltage of the OPC Drum is unstable.	Replace the HVPS Board.

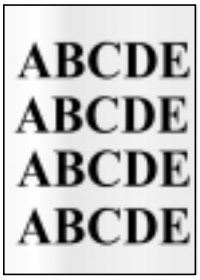
- White Spots / Black Spots / Colored Spots

	Cause	Sequence of Treatment
	Contamination of the internal mechanism of the toner cartridge	Replace the Toner Cartridge.
	OPC Drum surface contaminated or damaged.	Replace the OPC Drum.
	ITB Unit belt is contaminated or damaged.	Replace the ITB Unit Belt.
	Fuser Unit is contaminated.	Clean or replace the Fuser Unit.

- Toner Smudges on the reverse side.

	Cause	Sequence of Treatment
	Paper Path is contaminated.	Open covers fully and clean the Paper Path.
	ITB Unit Belt is contaminated.	Replace the ITB Unit.
	Pressure Roller of Fuser Unit is contaminated.	Clean or replace the Fuser Unit.

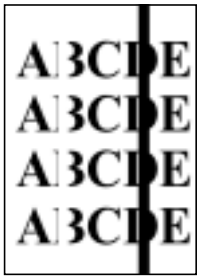
- Foggy back ground

	Cause	Sequence of Treatment
	If the background is contaminated with only one color.	Replace the appropriate Toner Cartridge
	If the background is generally contaminated with all color.	Ensure TDC process is enabled. If problem persists replace the OPC Drum
	If Printing Density is dark(one color only).	Replace the appropriate Toner Cartridge
	If Printing Density is dark(all colors).	Ensure TDC process is enabled. If problem persists replace the OPC Drum

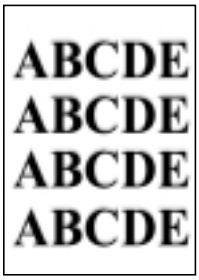
- Low image density

	Cause	Sequence of Treatment
	Poor toner transfer to OPC-one color only	Check and clean Toner contacts Replace the appropriate Toner Cartridge
	Poor toner transfer to OPC- al colors	Check and clean Toner, ITB and OPC unit contacts Ensure TDC process is enabled. If problem persists replace the OPC Drum
	Poor toner transfer to ITB Unit	Check and clean ITB Unit contacts. Re-install or replace the ITB Unit.
	ITB Bias voltage incorrect.	Check and clean ITB Unit contact. Replace the HVPS.

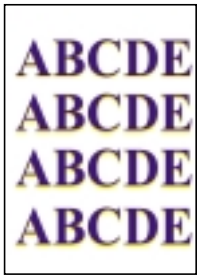
- Black / White / Colored Lines and Bands

	Cause	Sequence of Treatment
	Developing process is contaminated.	Replace the Toner Cartridge. Replace the OPC Drum.
	ITB Unit is damaged or dirty	Replace the ITB Unit.
	Fuser Unit is damaged or dirty	Clean or Replace the Fuser Unit.
	Lens Cover of LSU is damaged or dirty.	Clean the Lens Cover of LSU. Replace the LSU if the glass is damaged

- Offset Image

	Cause	Sequence of Treatment
	Afterimage on the OPC	Replace the OPC Drum.
	Afterimage on the ITB Unit.	Re-install or replace the ITB Unit.
	Toner Cartridge is installed incorrectly.	Re-set the Toner Cartridge.
	Individual color layers offset.	Replace ITB Unit.

- Deterioration of Print Quality for all Colors.

	Cause	Sequence of Treatment
	Problem transferring intermediate images to the ITB .	Check and clean ITB contacts Re-install or replace the ITB Unit.
	Contamination of the Paper Path.	Open the covers, check and clean the Paper Path.
	Problem transferring intermediate image onto paper	Check and clean T2 roller contacts Check T2 Solenoid and cam operation - ensure T2 comes properly into contact when solenoid operates.

- Deterioration of Printing Quality for Specific Color.

	Cause	Sequence of Treatment
	If the of Toner Cartridge is bad	Check or replace the Toner Cartridge.
	If the alignment betweem the OPC and ITB Units is not carrect.	Re-install the OPC and ITB Units.
	Uneven contact between OPC and ITB or between ITB and T2 roller.	Re-install or replace the ITB Unit. Check T2 roller, solenoid and cam operation.

- Uneven Color Density

	Cause	Sequence of Treatment
	Uneven contact between OPC and ITB or between ITB and T2 roller.	Re-install or replace the ITB Unit. Check T2 roller, solenoid and cam operation.
	Uneven color may occur when a toner cartridge has just been installed.	Make test printing a couple of times.

- Whited out area

	Cause	Sequence of Treatment
	Moisture or wet paper.	Ensure paper is stored properly and is not damp. Check paper storage conditions.
	Creases in paper.	1) Creases : Replace the Guide Input. 2) Replace the Fuser Unit. 3) Check OPC, Drum, Toner Cartridge and ITB Unit for contamination and replace as required.
	Fault occurs in Duplex Printing only.	Replace the Duplex Unit.

- Lateral Lines

	Cause	Sequence of Treatment
	Contamination or damage to rollers. Measure distance between lines.	Refer to Table of Circumferences of Rollers. - Mark in same position on every page. Replace ITB Unit Replace OPC Drum - Mark every 75.36 mm Replace T2 roller - Mark every 29.28 mm Replace Toner cartridge
	Laser Unit damaged	Line repeats every 1~2 mm- Replace the LSU Unit.
	Damage or contemination of OPC drum	Random line spacing- Replace the OPC Drum.

- Regularly repeating image defect

	Cause	Sequence of Treatment
	Contamination or damage to rollers. Measure distance between lines.	Refer to Table of Circumferences of Rollers. - Mark in same position on every page. Replace ITB Unit Replace OPC Drum - Mark every 75.36 mm Replace T2 roller - Mark every 29.28 mm Replace Toner cartridge
	Laser Unit damaged	Line repeats every 1~2 mm- Replace the LSU Unit.
	Damage or contemination of OPC drum	Random line spacing- Replace the OPC Drum.

8.3 Paper Feeding Problems and Troubleshooting

8.3.1 Top Margin Error.

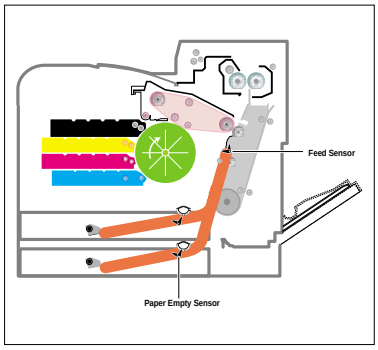
Symptoms : Printing begins at wrong position on the paper.

Check and Cause	Solution
Wrong sensor timing caused by defective feed sensor actuator.	Replace the defective actuator

8.3.2 JAM 0

Symptoms

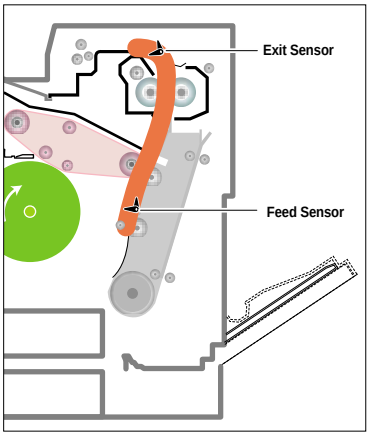
1. Paper has not exited from the cassette.
2. "Jam-0" occurs even though the paper feeds into the printer.



Check and Cause	Solution
1. Check the Feed Solenoid or Pick-Up using EDS Mode.	1. Replace the Solenoid.
2. Check that the Separator Pad has not become loose.	2. Replace the Separator - Pad (inside the Cassette).
3. Check if the surface of the Pick-Up Roller is clean.	3. Clean the surface of the Pick-Up Roller with IPA or water.
4. Check the Feed Sensor is not sticking by using the EDC Mode (When “JAM-0” occurs even though the paper feeds into the printer.)	4. Replace the main PBA or Sensor.

8.3.3 JAM1(JAM inside pinter)

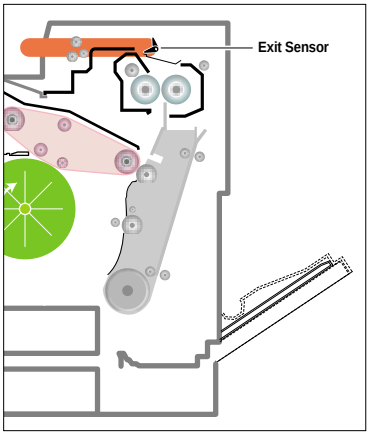
Symptoms Paper is jammed in front of the Fuser or under the T2 Roller.



Check and Cause	Solution
1. If the paper is jammed in front of or inside the Fuser	1. Replace the SMPS.
2. If the paper is caught in the Exit Roller and the Fuser check the Feed Sensor actuator opens and closes freely.	2. - Re-assembly the Feed Actuator and Spring, or clean the Hinge with a lint free cloth. - Replace the Main PBA.

8.3.4 JAM 2 (Jam in Exit Area)

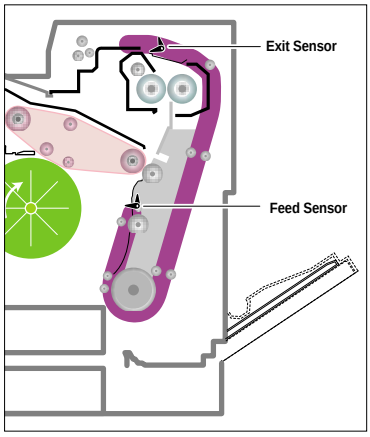
Symptoms
1. Paper is jammed inside the Fuser.
2. Paper is caught in the Exit Sensor Actuator.
3. Paper is caught in the Exit Roller and Fuser, after passing through the Feed Sensor actuator



Check and Cause	Solution
1. The Exit Sensor is defective if Jam 2 occurs after the paper is completely fed out of the printer. This can happen if the actuator sticks open or is slow to close.	1. Check if the Exit Sensor Actuator is broken or damaged. • Check if the Exit Sensor Actuator is deformed (Check that the senor arms are not deformed). • Check for Burrs or rough edges in the Exit Actuator assembly, and check that the sensor arms are free to move. • Check for foreign objects obstructing the Exit actuator.
2. Paper is rolled into the Fuser. • "Accordion" folding occurs repeatedly. • Fuser temperature is too high due to failure or other abnormal conditions. • If the Heat Roller or Pressure Roller is conteminated hard because of Toner.	2. Replace the Fuser.
3. If there are "Accordion" paper folds inside the Fuser.	3. • Replace the Exit Guide. • Check that the Exit unit is assembled properly and full functioning and replace if necessary.
4. If the Exit Sensor is defective. a Jam In Exit Area will occur and printing will stop.	4. Replace the Exit Sensor.

8.3.5 JAM Duplex

Symptoms "Jam in Duplex Area" indicated on the LCD panel.



Check and Cause	Solution
1. Paper in the duplex path fails to operate the Feed Sensor. 2. Paper in the duplex path fails to reach the Feed Sensor. because of jamming in the Duplex Path.	1. Replace the Main PBA or SMPS. 2. Check there are no foreign objects or fragments of paper in the duplex path Replace the Duplex Unit.

8.3.6 Multi-Feeding

Symptoms Multiple sheets of paper are picked up and fed simultaneously.

Check and Cause	Solution
1. Check the On/Off operation of the pick-up Solenoid using the EDC Mode.	1. Replace the Solenoid, harness or Main PBA.
2. Check the Friction Pad surface for dirt or other contamination.	2. Clean the Pad-Friction using a lint free cloth and water or IPA.
3. Check that the paper is not creased, folded or curved.	3. Use fresh paper.
4. Check that the Paper Guide in the cassette is properly adjusted and that paper is poperly loaded.	4. Adjust the Paper Guide and load paper under the Finger.
5. Influence of Static Electricity.	5. Fan paper before loading to reduce the effects of static electricity.

8.3.7 Paper rolling in the Fuser.

Symptoms Paper is rolled in the Fuser.

Check and Cause	Solution
1. If the Heat Roller is conteminated. (Background, Hot off set)	1. Replace the Fuser.
2. If “Accordion” folding occurs between the Fuser and the Exit Unit repeatedly.	2. Check if the Paper Guide Ribs on the Exit Unit are damaged or contaminated, and check the condition and operation of the Exit Roller.
3. If the Bearing - Fuser or Gear - Fuser is damaged or melted by excessive heat.	3. Check the SMPS and Main PBA if the Bearing Gear is melted.

8.4 Symptoms of Bad Operation and Troubleshooting.

8.4.1 Fuser Error

Symptoms Open Fuser / Over Heat / Low Heat displayed on the LCD Panel.

Check and Cause	Solution
1. Check the continuity of the Thermostat, AC Wire and Heat Lamp. 2. Check the continuity of the Thermistor and thermistor harness / contacts. 3. Test the Heat Lamps and the overheat circuitry. 4. Check the fuser for any evidence of damage due to overheating or melting.	1. Replace the whole Fuser assembly if the Thermostat is open circuit, otherwise replace heat lamps as required.. 2. Replace broken thermistor or cables as necessary. 3. Replace the main PWA id the overheat circuit is faulty.. 4. Replace the Fuser.

8.4.2 LSU Error

Symptoms LSU Error displayed on the LCD Panel.

Check and Cause	Solution
1. Check the LSU Connector. 2. Check the LSU Motor. 3. Check the HSYNC signal.	1 Replace the LSU. 2 If the same error recurs replace the main PWA.

8.4.3 Fuser does not work due to the drive gear melting.

Symptoms The fuser gears melt and the roller drive fails.

Check and Cause	Solution
1. The Fuser makes a noise and fails to operate, rollers may not rotate.	- Replace the Fuser. - Replace the Main PBA. - Replace the SMPS.

8.4.4 Paper Empty

Symptoms LCD shows "Paper Empty" even though paper is ready.

Check and Cause	Solution
1. Check for a broken or distorted paper empty sensor actuator. Check that the actuator is not jammed	1. Replace the Paper Empty Sensor actuator.
2. Check the sensor connectors and cable harness. Ensure that a signal reaches the main PWA	2. Replace the harness.
3. Use the EDC mode to test the actuator.	3. Replace the Sensor Board.

8.4.5 Paper Empty without indication.

Symptoms The machine remains 'Ready; even when the paper cassette is empty.

Check and Cause	Solution
1. Check for a broken or distorted paper empty sensor actuator. Check that the actuator is not jammed.	1. Replace the Paper Empty Sensor actuator.
2. Check the sensor connectors and cable harness. Ensure that a signal reaches the main PWA	2. Replace the harness.
3. Use the EDC mode to test the actuator.	3. Replace the Sensor Board.

8.4.6 Cover Open

Symptoms LCD displays "Cover Open" error even though the cover is closed.

Check and Cause	Solution
1. Check if the Hook Lever inside the Duplex Cover is broken or distorted.	1. Replace the Duplex Cover.
2. Check the Cover Open sensor, connectors and cable harness. Ensure that a signal reaches the main PWA	2. Replace the harness or microswitch as necessary.
3. Use the EDC mode to test the actuator.	3. Replace the Sensor Board.

8.4.7. Can not sense when the Cover is Opened.

Symptoms LCD Indicates "Ready" even when cover is opened.

Check and Cause	Solution
1. Check if the Hook Lever inside the Duplex Cover is broken or distorted.	1. Replace the Duplex Cover.
2. Check the Cover Open sensor, connectors and cable harness. Ensure that a signal reaches the main PWA	2. Replace the harness or microswitch as necessary.
3. Use the EDC mode to test the actuator.	3. Replace the Sensor Board.

8.4.8 Defective Motor

Symptoms Main Motor does not work and paper does not feed when printing. Jam 0 is displayed.

Check and Cause	Solution
1. Check if the Motor Harness or Motor PCB is broken or not.	1. Replace the Motor.
2. Test the Motor using EDC Mode.	2. Replace the Main PB.

8.4.9 No Power

Symptoms Power is not supplied to the set, or the LCD display is not on.

Check and Cause	Solution
1. Check the power supply input and DC voltage output from the SMPS. Check the fuses and fusible resistors in the SMPS. Check the wall socket.	1. Replace the Power Cable. Replace SMPS fuses. If the fault recurs replace the SMPS.
2. If the SMPS supply is OK, and the LCD still does not work check the display connectors and cable harness	2. Replace cables or LCD Panel Ass'y. Replace the Main PBA.
3. Check if +24VDC or other Power Supplies are shorted out.	3. Replace the components used for +24VDC.

8.4.10 Curved or Distorted Vertical Lines

Symptoms Curved, wavy or distorted vertical lines.

Check and Cause	Solution
1. Use EDC Mode to test the LSU. Check that the +24VCD signal between the main PWA and the LSU is stable	1. Replace the LSU or Main PBA.
2. Check that the LSU clock is stable.	2. Replace the Main PBA.

8.4.11 Low Toner

Symptoms "Ready Replace [Color]" is displayed on the LCD Panel.

Check and Cause	Solution
1. " Ready Replace [Color]" is displayed when 10% or less toner remains (in any of the cartridges).	1. Using the keypad check which toner is empty and replace the Toner Cartridge.
2. Check the condition of the contacts on the DEVE OEM KEY PBA	- Replace the DEVE OEM KEY PBA. - Replace the Main PBA.

8.4.12 Replace Toner[Color].

Symptoms LCD displays "Ready Replace CART".

Check and Cause	Solution
1. "Ready Replace CART" is displayed when the Image Count value is over 50,000. Image Density may be reduced. It is possible to continue to print one page at a time by pressing the 'On-Line' button when it flashes.	1. Replace the OPC Drum.

8.5 Treatment of Error Message.

ADC Not Confirm Error	The ADC(Analog -to - Digital Conversion) is defective.

1. Turn the printer off, wait 30 secs and then turn it back on.
2. Replace the Main PBA if the same symptoms recur.

Cover Open	One of the covers is not properly closed

1. DEVE Cover or Duplex Cover is open. Check and close it correctly.
2. Check the condition of the Cover Open Sensor assembly.
   --> Replace if it is damaged or nor correctly fitted.

Dev. Motor Error	The developer motor may stop working because of a harness or connector fault, increased torque in any one of the toner cartridges due to rollers sticking, a power supply fault or a fault on the main PBA.

1. Open the Deve Cover and check each Toner Cartridge to ensure that the rollers rotate.
   --> Turn the rollers by hand and check how difficult it is to rotate the rollers.
   --> Replace the toner cartridge if it seems excessively tight.
2. Open the Rear Cover and check if the Deve Motor Harness is assembled correctly.
3. Open the Main PBA Cover and check if the Harness (24pins) connected to the Deve Drive PBA is assembled correctly.
   --> Replace the Harness if there are damaged or badly fitted parts.
4. Check the Power Supply to the Main PBA.
   --> Replace the SMPS if the Power Supply is out of specification.
   --> Replace the Main PBA if the Power Supply from the SMPS is OK.

Engine Fuser Low Heat Error	* The temperature of the Fuser is lower than the Printing temperature. * The Fuser harness is not connected properly.

1. Check that the Fuser is installed correctly.
   --> If not, re-install.
2. Check the AC power to the Fuser (Copper contact.)
   --> If it is no good go to step 3 below otherwise go to step 5.
3. Check the Thermostat on the Fuser.
   --> If it is open circuit replace the Thermostat.
4. Check that the Thermostat on the Fuser is properly positioned and assembled.
   --> Replace the Thermostat if it is not.
5. Check both of the fuser Heat Lamps.
   --> Replace any faulty lamps.
6. Check the Harness connected to the SMPS and Fuser.
   --> Refit the harness or replace if damaged.
7. Replace the Main PBA.
8. Replace the SMPS.

Engine Fuser Over Heat Error

The temperature of Fuser is higher than the Printing temperature.

1. Check the Thermostat on the Fuser.
   --> If it is open circuit replace the Thermostat.
2. Check that the Thermostat on the Fuser is properly positioned and assembled.
   --> Replace the Thermostat if it is not.
3. Check the Harness connected to the SMPS and Fuser.
   --> Refit the harness or replace if damaged.
4. Replace the Main PBA.
5. Replace the SMPS.

Warning : You must replace the complete Fuser Ass'y if Over Heat Error has occurred.
Do not replace only the Thermistor.

Engine LSU Error

There is a fault in the LSU unit.

1. Use EDC mode to test the HSYNC signal and LSU Motor.
2. Check the Harness connected to the Engine Controller and LSU.
   --> Refit the harness or replace it if it is damaged..
3. Replace the LSU.

Main Motor Error

The Main Motor that drives the OPC, ITB and Pick-Up is faulty.

1. Open the Deve Cover and Top Cover and then check the OPC Unit and ITB Unit.
   --> Re-install if they are not correctly fitted or are damaged.
2. Open the Rear Cover and then check the Main Motor Harness.
   --> Refit the harness or replace it if it is damaged.
3. Check if the Power Supply from the SMPS to the Main PBA.
   --> Replace the SMPS if the voltages are outside specification.

4) Use EDC Mode to run the main motor. Check CN27 Pin 7 on the main PBA is low (almost 0V).
   --> Replace the Main PBA if the voltage is near 5V

5) Use EDC Mode to run the main motor. Check that the Motor Clock is generated at CN27 Pin 9 on the Main PBA.
   --> Replace the Main PBA if isn't generated.

Waste Motor Error

This error is caused by open circuit of Waste Motor Harness or the motor stalling due to increased Waste Motor torque during operation.

1. Open the Front Cover and then check if the Waste Toner Tank is full or the waste inlets are blocked with Waste Toner.
   --> Replace the Waste Toner Tank and unblock waste inlet feeds.
2. Open the Top Cover and then remove the ITB Unit and OPC Unit and check if the OPC waste toner outlet is blocked.
3. Remove the Front Cover and then check the Waste Motor Harness.
   --> Refit or replace the harness if it is damaged.
4. Remove the HVPS Cover and then check that the HVPS OEM Harness is correctly fitted.
   --> Refit or replace the harness if it is damaged.
5. Measure the Voltage on CN2 Pin1 and Pin3 of OEM PBA. (Normal : Over +10VDC)
   --> replace the OEM PBA if there is no output.

Image Transfer Error

This is caused by a badly fitted or unlocked ITB unit or a faulty ITB Home Sensor.

1. Open Top Cover and then check that the ITB unit properly fitted and locked in position.
   --> Remove, replace and re-lock the ITB unit.
   --> If the same fault recurs regularly replace the ITB unit.
2. Check the condition of the ITB Harness (especially if replacing the ITB does not resolve the problem).
   --> Refit or replace the harness if it is damaged.
3. Check the signal on Pin 1 of CN10 on the Main PBA.
   --> Replace the Main PBA if the signal is Active low(almost 0V).

Invalid Drum Cartridge

Can not communicate with the OPC Unit.

*This is caused by a wrong value of OEM Resistor in the OPC Unit.
*It is also caused by misreading the value of the OEM Resistor because of contamination of the contact points.

1. Check that an original Samsung Drum Cartridge is fitted.
   --> If not replace the OPC drum.
2. Clean the OPC unit contact points.
3. Check the Harness connected between the Main PBA and OPC Unit.
   --> Refit or replace the harness if it is damaged.
4. Check D11 on the Engine Controller.
   --> Replace the Main PBA.

Invalid Image Transfer

Can not communicate with ITB Unit.

*This may be caused by a wrong value of OEM Resistor in the OPC Unit.

1. Check that an original Samsung ITB Unit is fitted.
   --> If not replace the ITB Unit.
2. Open the Top Cover and then check that the ITB unit is correctly locked in position.
   --> Remove, replace and re-lock the ITB unit.
3. If the fault continues after re-fitting the ITB unit several times check the voltage on Pin4 of CN10 on the Main PBA.
   --> Replace the ITB Harness if the voltage is not 5 voltage.
4. Replace the ITB Unit.
5. Replace the Main PBA.

Invalid Toner [Color]

This is caused by a wrong value of OEM Resistor in the Toner Cartridge.

1. Clean the 3 contact points on the Toner Cartridge and then re-install.
2. Replace the Toner Cartridge if the same error recurs.
3. Remove the Front Cover and then check the condition of the spring contacts between the DEVE OEM PBA and Toner Cartridge if the same error occurs.
   * Terminal : parts name(MEA UNIT-TERMINAL,JC97-01771A)
--> Clean and Re-assemble.
4. Replace the OEM PBA, HVPS and Main PBA in order if the same error recurs.

Invalid NEW Toner [Color]

This occurs when the Fusible Resistor in the Toner Cartridge does not become open circuit within regulation time.

*This may be caused by a wrong value of OEM Resistor in the Toner Cartridge.
1. Check that an original Samsung Toner Cartridge is fitted.
   --> If not replace the Toner Cartridge.
2. Clean the 3 contact points on the Toner Cartridge and then re-install.
3. Remove the Front Cover and then check the condition of the spring contacts between the DEVE OEM PBA and Toner Cartridge if the same error occurs.
   * Terminal : parts name(MEA UNIT-TERMINAL,JC97-01771A)
   --> Clean and Re-assemble.
4. Replace the Toner Cartridge if the same error recurs.
5. Replace the DEVE OEM PBA, HVPS and Main PBA in order if the same error recurs.

Jam 0 In [Tray]

Paper is caught in the tray.

1. Open the Duplex Cover and then remove the paper stuck in the machine.
2. Open the appropriate tray and after removing any trapped paper ensure that the tray is properly loaded, not over-filled and that paper guides are properly adjusted.
3. Check that the Feed Sensor is fitted correctly and is free to operate.
4. Use EDC Mode to check the operation of the feed sensor.
4. Check that the operation of the appropriate Pick-Up Clutch under the Cassette is normal.
5. If the Clutch does not work check the condition of the cable harness to the Main PBA.
6. Replace the Main PBA if the voltage on Pin 2 of CN32 (FCF) or Pin 2 of CN25 (MPF) on the Main PBA is +24VDC. (Normal Output : Pin 1 = +24VDC, Pin 2 = 0V)

Jam In Duplex Path

Paper is caught while printing side 2.

1. Open the Duplex Cover and then remove the paper.
2. Remove any foreign objects in the Duplex Path.

Jam In Exit Area

Paper is caught in the Exit Area.

1. Check the Exit Sensor actuator.
   --> Replace the Fuser if the Exit Sensor actuator is damaged or bent.
2. Check that the Paper Guide Rib of the Output Guide is clean, and not damaged or distorted.
   --> Replace the Fuser or Exit Ass'y if it is not normal.
3. Check the condition and operation of the Fuser Rollers.

Jam Inside Printer

Paper is caught inside printer

1. Open the Duplex Cover and then remove the paper.
2. Check the Feed sensor actuator.
   --> Replace the Feed Sensor if it is damaged or distorted.

Load Manual Press Cont Key	This is only displayed when printing in Manual Feed mode and the MPF tray is empty..

Load a sheet of print material and press the On-Line/Continue button. You need to press the button for each page to be printed.

Load [Size] In [Tray]	The size of paper in the tray and the size of paper required by the document being printed are different.

*In this case the size of paper and tray is indicated.

Load the correct size of paper.

Memory Overflow	Not enough Memory Capacity.

The printer has insufficient memory to build the page image. The print process will be cancelled automatically and the printer will return to the Wait Mode. Add more memory to the printer.

Page Too Complex	The layout of document is to complex.

Try to print again after making the layout simpler and erasing any unnecessary images. If the message appears repeatedly you will need to add extra memory to the printer.

Press Cont Key Replace [Ctrl]	Not enough Toner

* Press the [On-Line/Continue] button to continue printing.
* Replace the Toner Cartridge when the image quality becomes unacceptable.
* You can select if this message will be displayed on the LCD Pane or not.

Press Cont Key Replace Drum	The OPC drum is coming to the end of its usable life and will need replacing soon.

* Press the [On-Line/Continue] button to continue printing.
* Replace the OPC Drum when the image quality becomes unacceptable.
* You can select if this message will be displayed on the LCD Pane or not.

Press Cont Key Replace Transfer	The ITB Unit is coming to the end of its usable life and will need replacing soon.

* Press the [On-Line/Continue] button to continue printing.
* Replace the ITB Unit when the image quality becomes unacceptable.
* You can select if this message will be displayed on the LCD Pane or not.

Press Cont Key Replace T2 Roller	The T2 roller is coming to the end of its usable life and will need replacing soon.

* Press the [On-Line/Continue] button to continue printing.
* Replace the T2 roller when the image quality becomes unacceptable.
* You can select if this message will be displayed on the LCD Pane or not.

Ready IP Conflict	IP address conflict with the address of another device on the network.

This only occurs when the optional network interface is connected and configured for TCP/IP support. Change the IP Address.

Ready [CMYK] Low Toner	The indicated Toner Color cartridge is almost empty.

Replace the indicated Color Toner Cartridge.
To temporarily improve printing for a short time remove the indicated toner cartridge and rock it gently from side to side for a short time before replacing it.

Replace Drum Cartridge

This occurs when the OPC drum is not correctly installed.

1. Check that the OPC Unit is installed and locked correctly.
2. Check the OPC OEM Harness to the Main PBA.
   --> Refit or replace the harness if it is damaged.
3. Replace the Main PBA.

Replace Image Transfer

There is a problem with the ITB Unit installation.

* This occurs when the ITB Unit is not correctly installed and locked
* This occurs when the value of the OEM Resistor in the ITB Unit is incorrectly detected due to contamination of the contact.

1. Open the Top Cover and then check that the ITB Unit is installed and locked correctly.
2. Clean the contacts on the ITB Unit
3. Replace the ITB unit.

Replace Toner [Color]

Toner Cartridge is not installed.

* This occurs when the indicated Toner Cartridge is not installed.
* This occurs when the value of the OEM Resistor in the Toner Cartridge is incorrectly detected due to contamination of the contacts.

1. Open the Deve Cover and check that the Toner Cartridge is installed.
2. Clean the 3 contact points on the Toner Cartridge and then re-install.
3. Remove the Front Cover and then check the condition of the spring contacts between the DEVE OEM PBA and Toner Cartridge if the same error occurs.

* Terminal : parts name(MEA UNIT-TERMINAL,JC97-01771A)
  --> Clean and Re-assemble.

4. Replace the Toner Cartridge if the same error recurs.
5. Replace the DEVE OEM PBA, HVPS and Main PBA in order if the same error recurs.

Tray2 Error

This occurs when Tray2 is not installed correctly.

Turn the printer off and re-install Tray2.

Tray2 Jam Cover Open	The cover on Tray 2 is open.

Check and ensure that the cover of Tray2 is closed properly.

Waste Toner Full/Not Install	Waste Toner Tank is full or not installed.

1. Check and replace the Waste Toner Tank or install it correctly.
2. Check that the Waste Toner Sensor actuator lever is free and not damaged or distorted.
3. Check the condition of the waste toner sensor cable harness and refit or replace if it is damaged.

9. Exploded View & Assembly Parts List

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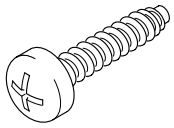
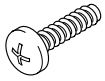
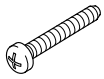
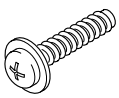
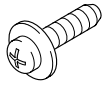
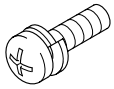
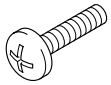
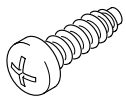
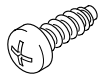
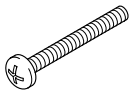
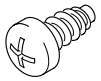
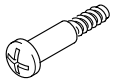
* The figures in this chapter illustrate the major subassemblies in the printer and their component parts. A table accompanies each exploded view diagram. Each table lists the item number for the replaceable part, the associated part number for the item, the quantity, and a description of the part.

* While looking for an electrical part number, pay careful attention to the voltage listed in the remark column to ensure that the part number selected is for the correct model of the printer.

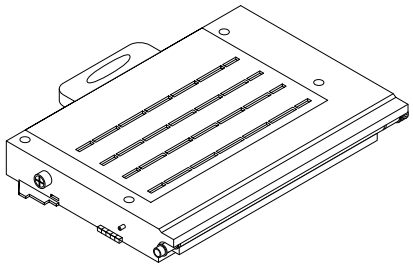
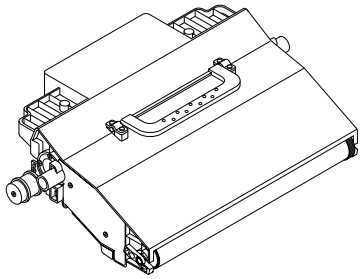
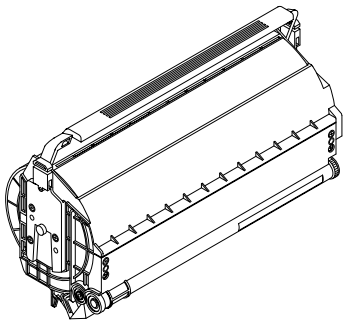
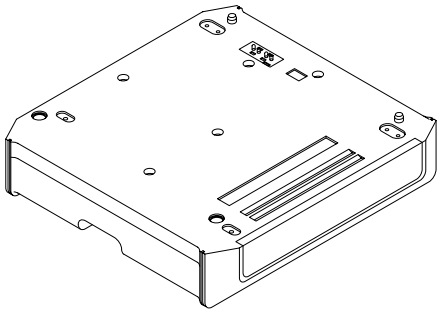
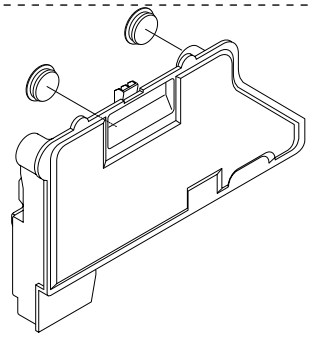
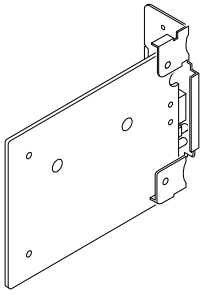
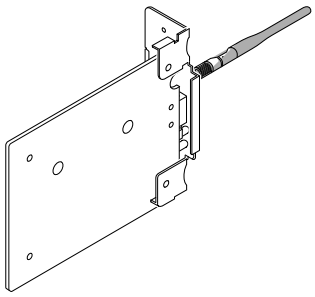
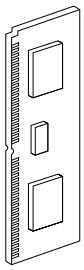
Screws Used in the Printer

The screws listed in the table below are used in this printer. Please ensure that, when you disassemble the printer, you keep a note of which screw is used for which part and that, when reassembling the printer, the correct screws are used in the appropriate places.

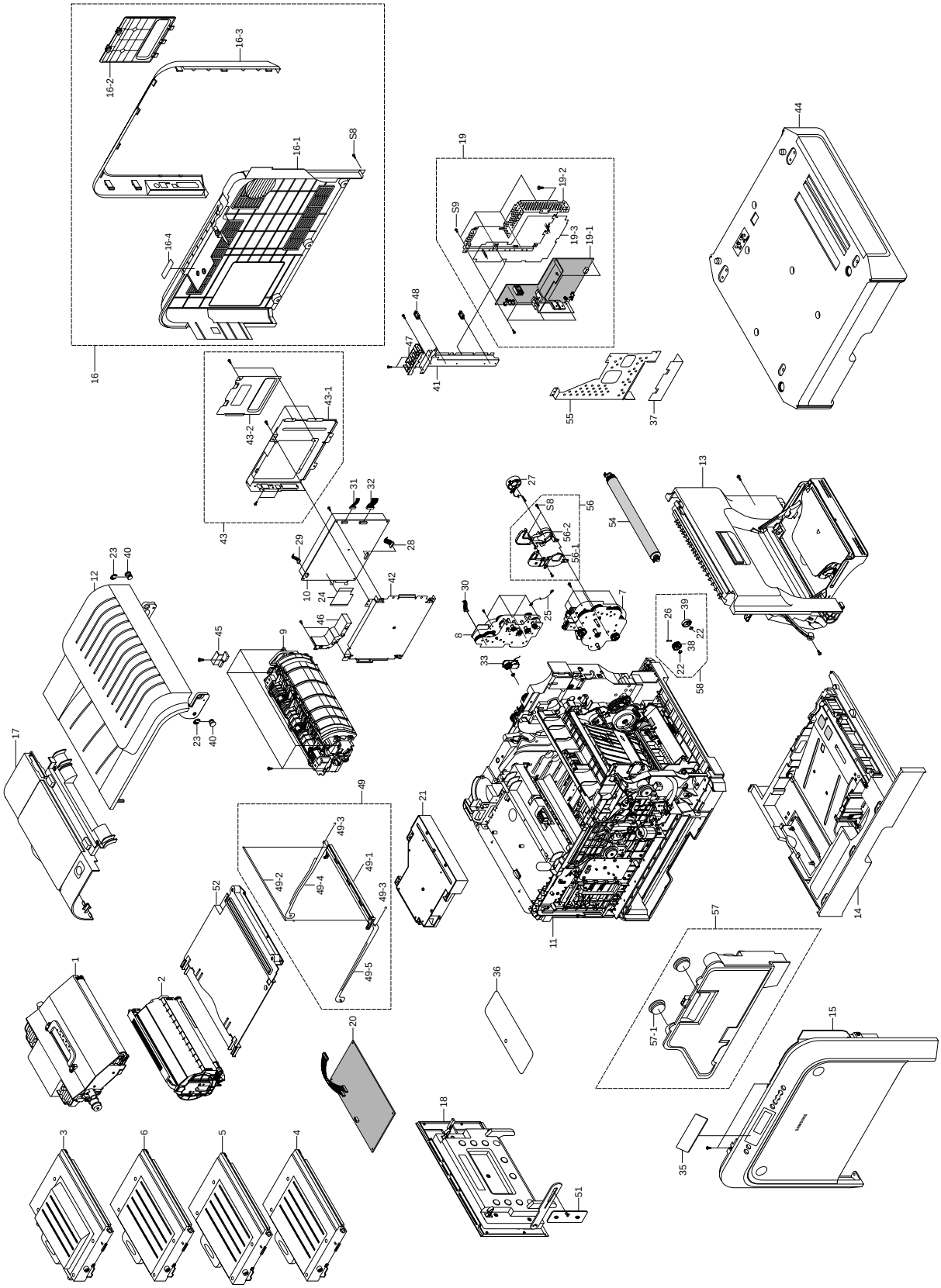
NO	DESCRIPTION	SEC CODE	SPEC
S1	SCREW-MACHINE	6001-000485	2.6*4, GOLD
S2	SCREW-TAPPING	6002-000115	4*15, GOLD
			
S3	SCREW-TAPPING	6002-000175	3*8, GOLD
S4	SCREW-TAPTITE	6002-000308	2.6*6, GOLD
S5	SCREW-TAPTITE	6003-000119	3*8, BLACK
			
S6	SCREW-TAPTITE	6003-000152	2*10, GOLD
			
S7	SCREW-TAPTITE	6003-000179	3*6, GOLD
S8	SCREW-TAPTITE	6003-000196	3*10 SILVER
			
S9	SCREW-TAPTITE	6003-000266	3*6, GOLD
			
S10	SCREW-ASS'Y MACH	6006-001193	3*6, GOLD
			

NO	DESCRIPTION	SEC CODE	SPEC
S11	SCREW-TAPTITE	6003-000269	3*6, GOLD
S12	SCREW-TAPTITE	6003-001001	3*8, BLACK
S13	SCREW-MACHINE	6001-000568	3*8, SILVER
			
S14	SCREW-TAPTITE	6003-001256	4*10 SILVER
			
S15	SCREW-TAPTITE	6003-000261	3*6, GOLD
			
S16	SCREW-MACHINE	6003-001068	2*16, BLACK
			
S17	SCREW-TAPTITE	6003-000301	4*6, GOLD
			
S18	SCREW-SPICIAL	6009-001396	3*10, BLACK
			
S19	SCREW-TAPTITE	6003-000008	4*6, SILVER

Consumables & Options

Toner Cartridge (C,M,Y,K)	ITB Unit
	
OPC Drum Cartridge	SCF
	
Waste Toner Tank	NIC(Network Interface Card)
	
NIC(Network Interface Card) : Wireless	Memory Card
	

9.1 Main Exploded View



Main Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

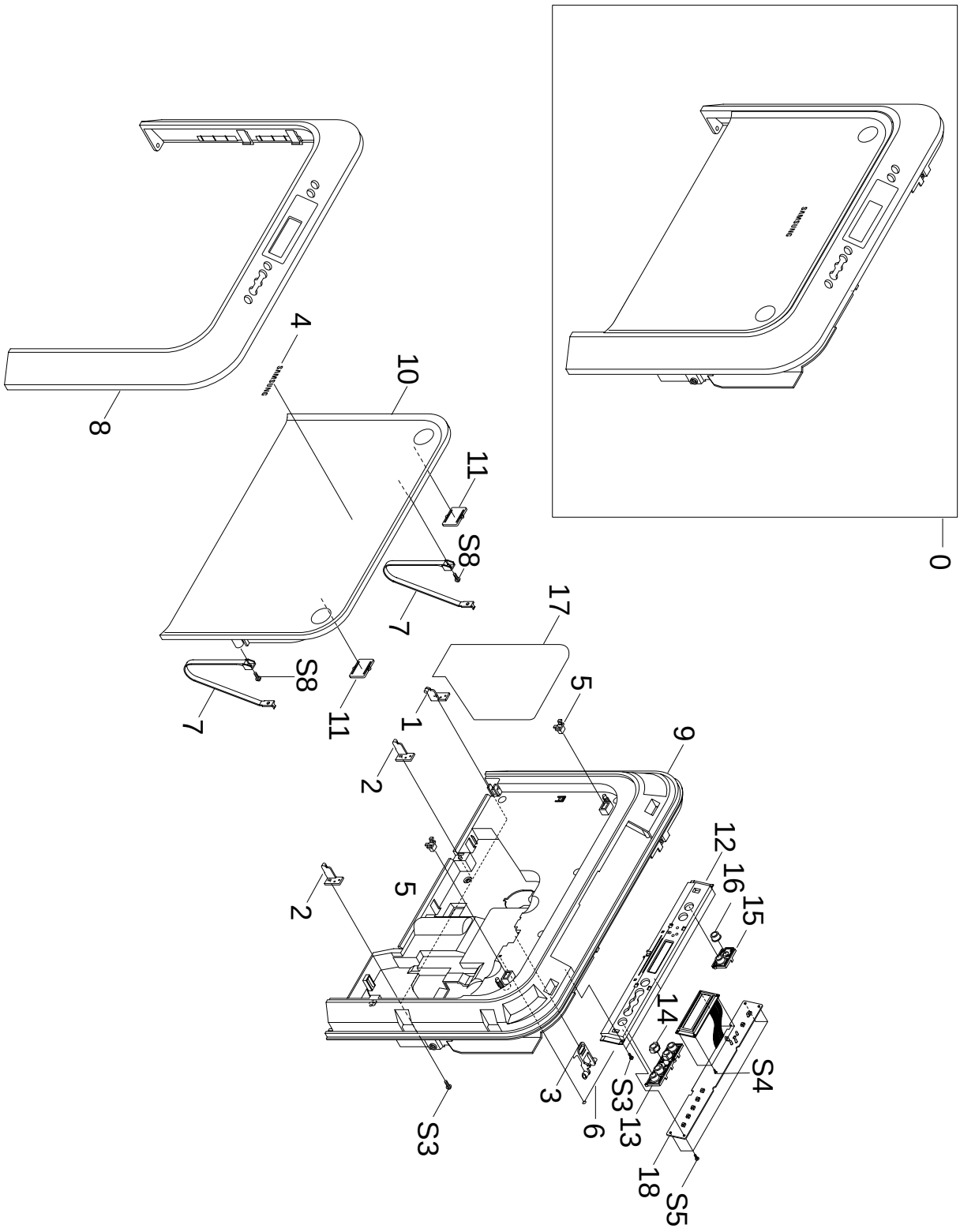
No.	Description	SEC.Code	Q'ty	SA	Remark
0	SET	CLP-500			
1	ELA UNIT-ITB	JC96-02769A	1	O	USER CHANGE
2	ELA UNIT-OPC	JC96-02770A	1	O	USER CHANGE
3	ELA UNIT-DEVE BLACK	JC96-02765A	1	O	USER CHANGE
4	ELA UNIT-DEVE CYAN	JC96-02766A	1	O	USER CHANGE
5	ELA UNIT-DEVE MAGENTA	JC96-02767A	1	O	USER CHANGE
6	ELA UNIT-DEVE YELLOW	JC96-02768A	1	O	USER CHANGE
7	ELA UNIT-MAIN DRIVE	JC96-02771A	1	O	
8	ELA UNIT-DEVE DRIVE	JC96-02772A	1	O	
9	ELA UNIT-FUSER 230V	JC96-02773A	1	O	230V
	ELA UNIT-FUSER 110V	JC96-02773B	1	O	110V
10	PBA MAIN-CONTROLLER	JC92-01441A	1	O	
11	MEA MAIN-FRAME	JC97-01757A	1	X	
12	MEA-EXIT	JC97-01754A	1	O	
13	MEA-DUPLEX	JC97-01756A	1	O	
14	MEA-CASSETTE	JC97-01753A		O	
15	ELA HOU-COVER FRONT	JC96-02798A	1	X	
16	MEA HOU-COVER REAR	JC97-01764A	1	O	
16-1	PMO-COVER REAR	JC72-01201A	1	X	
16-2	PMO-COVER REAR DECO	JC72-01202A	1	X	
16-3	PMO-COVER OPEN BOARD	JC72-01203A	1	X	
16-4	LABEL(P)-REAR	JC68-01176A	1	X	
16-S8	SCREW-TAPTITE	6003-000119	1	O	
17	MEA HOU-COVER TOP	JC97-01765A	1	O	
18	MEA HOU-COVER DEVE	JC97-01766A	1	O	
19	ELA UNIT-SMPS_230V	JC96-02875A	1	O	230V
	ELA UNIT-SMPS_110V	JC96-00055A	1	O	110V
19-1	SMPS-V2_230V	JC44-00056A	1	O	230V
	SMPS-V1_110V	JC96-00055A	1	O	110V
19-2	IPR-BRKT SMPS	JC70-00415A	1	O	
19-3	SHEET-SMPS	JC63-00236A	1	X	
19-S9	SCREW-TAPTITE	6003-000266	1	O	
20	HVPS-BIGBANG	JC44-00058A	1	O	
21	UNIT-LSU BIGBANG	JC59-00020A	1	O	
22	WASHER-PLAIN	6031-001255	2	X	
23	RING-E	6044-000125	2	X	
24	SHEET-ECU BOARD	JC63-00246A	1	X	
25	CBF HARNESS-LIU GND	JB39-00103A	1	O	
26	ICT-PIN ADF	JB70-00168A	1	X	
27	FAN-DC	JC31-00025A	1	O	
28	CBF HARNESS-MAIN LSU	JC39-00271A	1	O	
29	CBF HARNESS-MAIN_PANEL	JC39-00281A	1	O	
30	CBF HARNESS-DEVE_MOTOR	JC39-00287A	1	O	
31	CBF HARNESS-MAIN_MOTOR	JC39-00293A	1	O	
32	CBF HARNESS-MAIN_SMPS	JC39-00296A	1	O	
33	MEP-CLUTCH CAM SOLENOID	JC47-00007A	1	O	

Main Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
34	BUSH-8/5	JC61-00426A	1	O	
35	SHEET-COVER FRONT OPE	JC63-00184A	1	O	
36	SHEET-HVPS	JC63-00234A	1	O	
37	PMO-COVER SMPS	JC72-01067A	1	O	
38	GEAR-OPC DRIVE 2_Z40	JC66-00478A	1	O	
39	CAM-T2 ENGAGE	JC66-00512A	1	O	
40	SHAFT-COVER EXIT HINGE	JC66-00616A	2	O	
41	IPR-BRKT GUIDE ECU C	JC70-00382A	1	O	
42	IPR-BRKT ECU LOWER	JC70-00409A	1	O	
43	MEA UNIT-BRKT ECU UPPER	JC97-01760A	1	O	
43-1	IPR-BRKT ECU UPPER	JC70-00410A	1	O	
43-2	IPR-BRKT ECU OPTION	JC70-00411A	1	O	
43-S9	SCREW-TAPTITE	6003-000266	2	X	
44	ELA UNIT-SCF	JC96-02856A	1	O	OPTION
45	PMO-COVER SENSOR BASE	JC72-01147A	1	O	
46	PMO-HARNESS C	JC72-01165A	1	O	
47	PMO-HARNESS D	JC72-01166A	1	O	
48	CABLE CLAMP	6502-001093	2	X	
49	MEA UNIT-LSU CLEANER	JC97-01838A	1	O	
49-1	SHUTTER-LSU CLEANER	JC64-00093A	1	O	
49-2	SHAFT-LSU CLEANER	JC66-00673A	1	X	
49-3	RING-E	6044-000121	2	X	
49-4	PLATE-LINK REAR	JC61-00843A	1	O	
49-5	PLATE-LINK FRONT	JC61-00844A	1	O	
51	PMO-DEVE OPEN LINK GUIDE	JC72-01176A	1	O	
52	PMO-COVER LSU/DEVE	JC63-00308A	1	O	
54	ELA UNIT-T2 ROLLER	JC96-02793A	1	O	
55	IPR-BRKT SMPS COVER	JC70-00416A	1	O	
56	MEA UNIT-DUCT FUSER	JC97-01811A	1	O	
56-1	PMO-DUCT FUSER LOWER	JC72-01150A	1	X	
56-2	PMO-DUCT FUSER UPPER	JC72-01151A	1	X	
56-S8	SCREW-TAPTITE	6003-000196	1	X	
57	MEA UNIT-WASTE TONER TANK	JC97-01821A	1	O	
57-1	COVER-M-WASTE TONER UPPER	JC63-00271A	1	O	
57-2	COVER-M-WASTE TONER LOWER	JC63-00272A	1	O	
57-3	CAP-TONER OPC	JC67-00044A	2	O	
S2	SCREW-TAPPING	6002-000115	2	X	
S5	SCREW-TAPTITE	6003-000119	6	X	
S8	SCREW-TAPTITE	6003-000196	50	X	
S9	SCREW-TAPTITE	6003-000266	21	X	
S14	SCREW-TAPTITE	6003-001256	11	X	
S15	SCREW-MACHINE	6001-000568	2	X	

9.2 Cover Front Exploded View

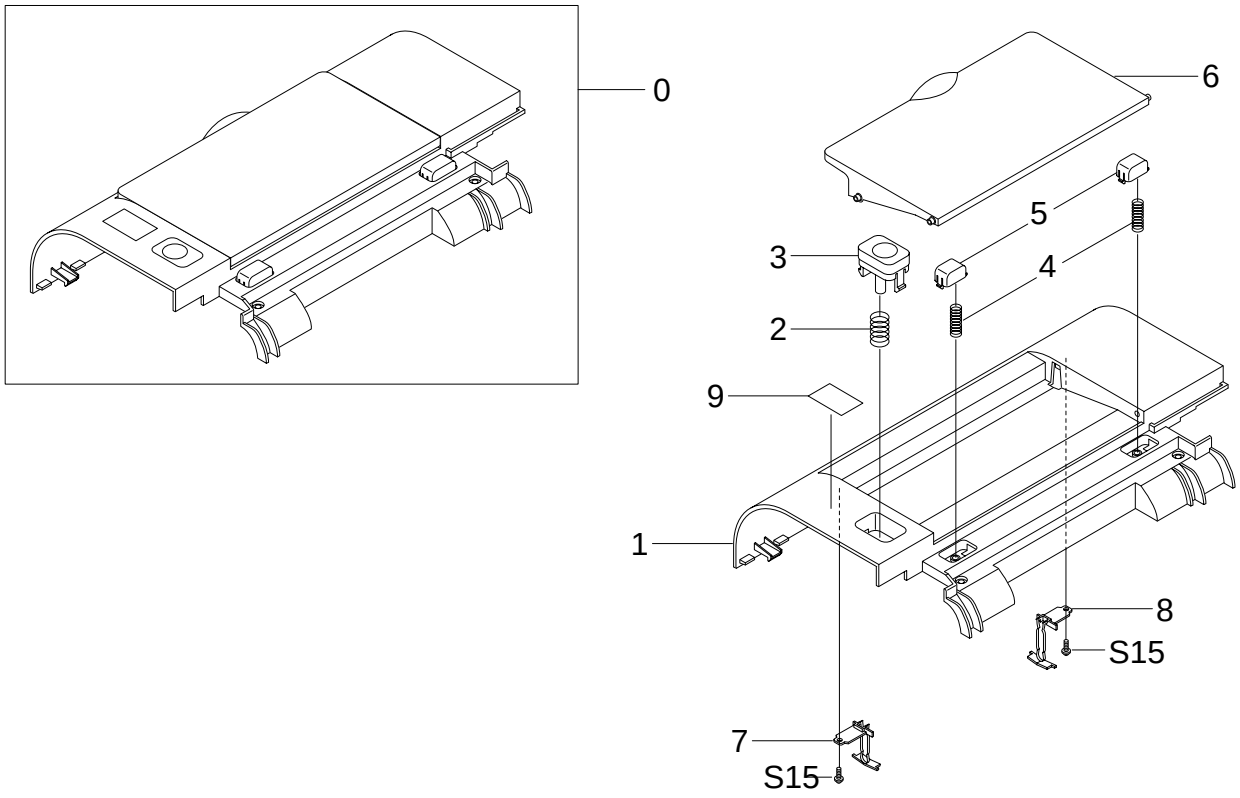


Cover Front Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA HOU-COVER FRONT	JC96-02798A	1	X	XAA
	ELA HOU-COVER FRONT	JC96-02798B	1	X	XEU
1	COVER-FRONT HINGE F	JC63-00179A	1	X	
2	COVER-FRONT HINGE R	JC63-00180A	2	X	
3	LOCKER-M-WASTER TANK	JC64-00080A	1	X	
4	BADGE-BRAND	JC64-00081A	1	O	
5	LOCKER-LATCH PUSH	JB64-00007A	2	X	
6	LOCKER-TANK PIN	JC64-00087A	1	X	
7	PMO-TIE STOPPER	JC72-00766A	2	X	
8	PMO-COVER FRONT DECO	JC72-01192A	1	O	XAA
	PMO-COVER FRONT DECO	JC72-01192B	1	O	XEU
9	PMO-COVER FRONT INNER	JC72-01193A	1	X	
10	PMO-COVER FRONT OPEN	JC72-01194A	1	X	
11	PMO-COVER FRONT PUSH	JC72-01195A	2	X	
12	PMO-COVER OPE FRAME	JC72-01196A	1	X	
13	PMO-OPE KEY 1	JC72-01197A	1	X	
14	PMO-OPE KEY 1 CAP	JC72-01198A	1	X	
15	PMO-OPE KEY 2	JC72-01199A	1	X	
16	PMO-OPE KEY 2 CAP	JC72-01200A	1	X	
17	LABEL(P)-FRONT INNER	JC68-01175A	1	X	
18	PBA SUB-PANEL	JC92-01443A	1	O	
S4	SCREW-TAPTITE	6002-000308	2	X	
S5	SCREW-TAPTITE	6003-000119	6	X	
S8	SCREW-TAPTITE	6003-000196	2	X	
S3	SCREW-TAPPING	6002-000175	4	X	

9.3 Cover Top Exploded View

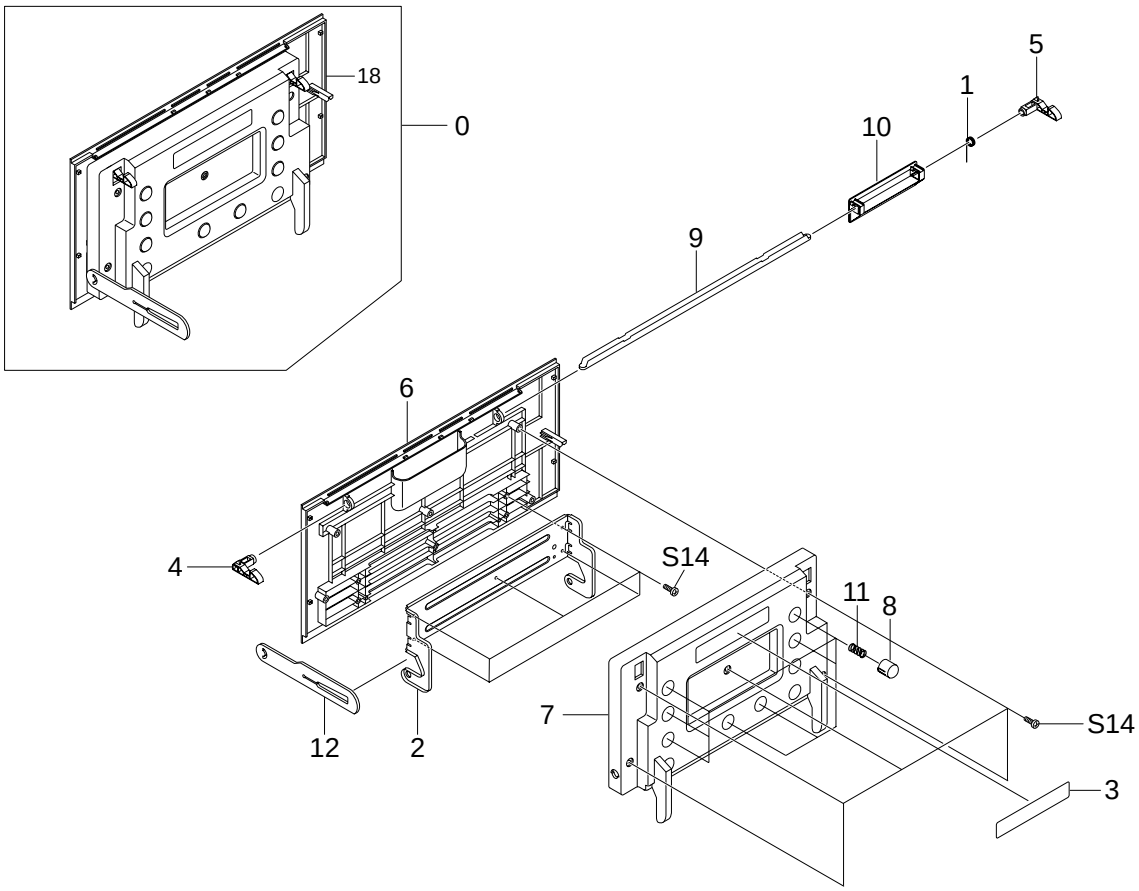


Cover Top Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA HOU-COVER TOP	JC97-01765A	1	O	
1	PMO-COVER TOP	JC72-01204A	1	X	
2	SPRING-CS	6107-000117	1	X	
3	PMO-COVER TOP BUTTON	JC72-01205A	1	X	
4	SPRING-CS	6107-001198	2	X	
5	PMO-COVER TOP OPENER	JC72-01206A	2	X	
6	PMO-COVER TOP STACKER	JC72-01207A	1	O	
7	STOPPER-STACKER F	JC61-00714A	1	X	
8	STOPPER-STACKER R	JC61-00715A	1	X	
9	LABEL(P)-TOP	JC68-01181A	1	X	
S15	SCREW-TAPTITE	6003-000261	2	X	

9.4 Cover Deve Exploded View

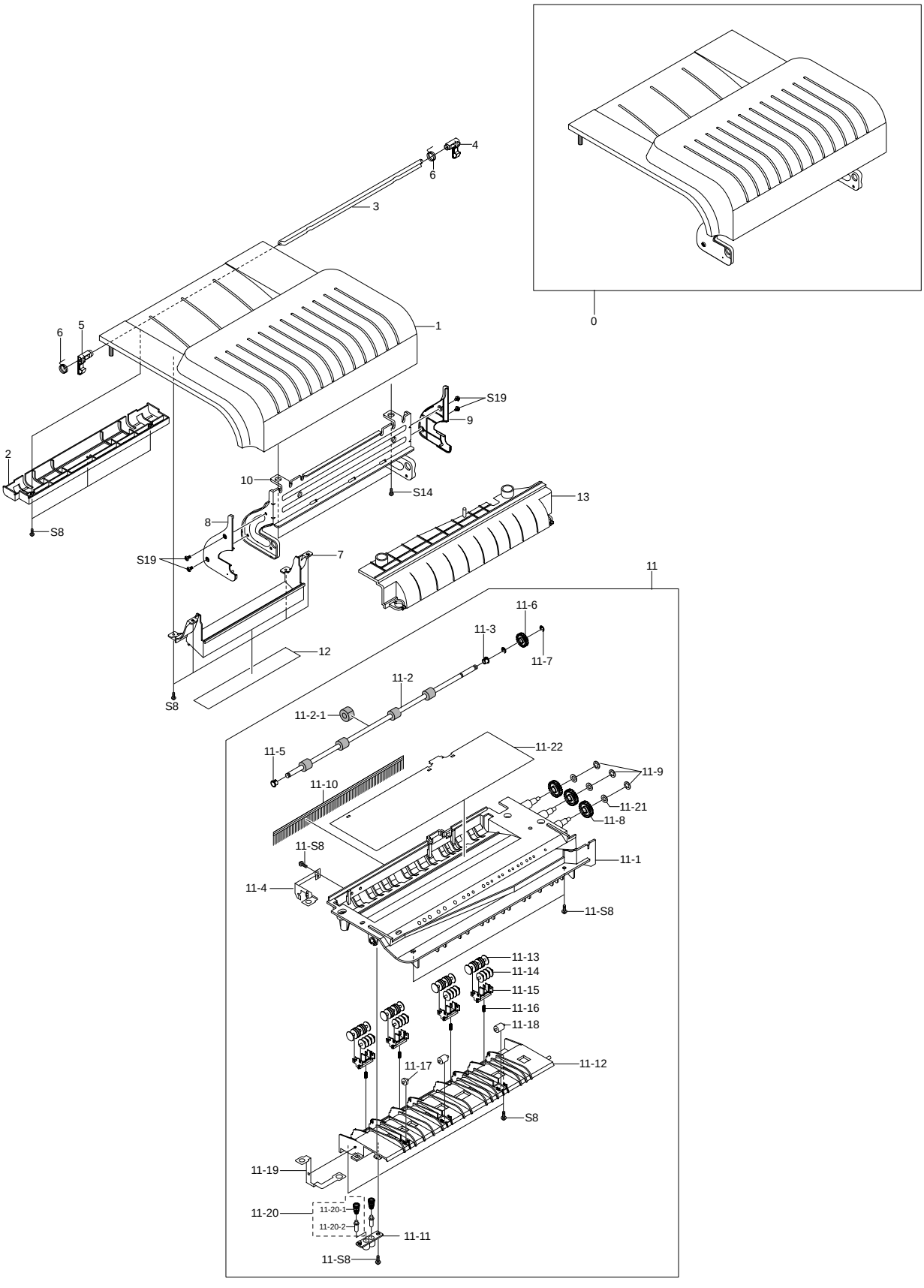


Cover Deve Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA HOU-COVER DEVE	JC97-01766A	1	O	
1	SPRING-TS	6107-001206	1	X	
2	IPR-COVER DEV LOCK BAR	JC70-00436A	1	X	
3	LABEL(P)-DEVE COVER	JC68-01180A	1	X	
4	PMO-COVER DUP LOCKER F	JC72-01081A	1	O	
5	PMO-COVER DUP LOCKER R	JC72-01082A	1	X	
6	PMO-COVER DEVE	JC72-01213A	1	X	
7	PMO-COVER DEVE INNER	JC72-01214A	1	X	
8	PMO-COVER DEV SPRING CAP	JC72-01215A	8	X	
9	ARM-COVER DEVE HINGE	JC66-00563A	1	X	
10	PMO-COVER DUPLEX HANDLE	JC72-01079A	1	X	
11	SPRING-CS	6107-01198A	8	X	
12	PMO-DEVE OPEN LINK	JC72-01175A	1	X	
S14	SCREW-TAPTITE	6003-001256	10	X	

9.5 Exit Ass'y Exploded View

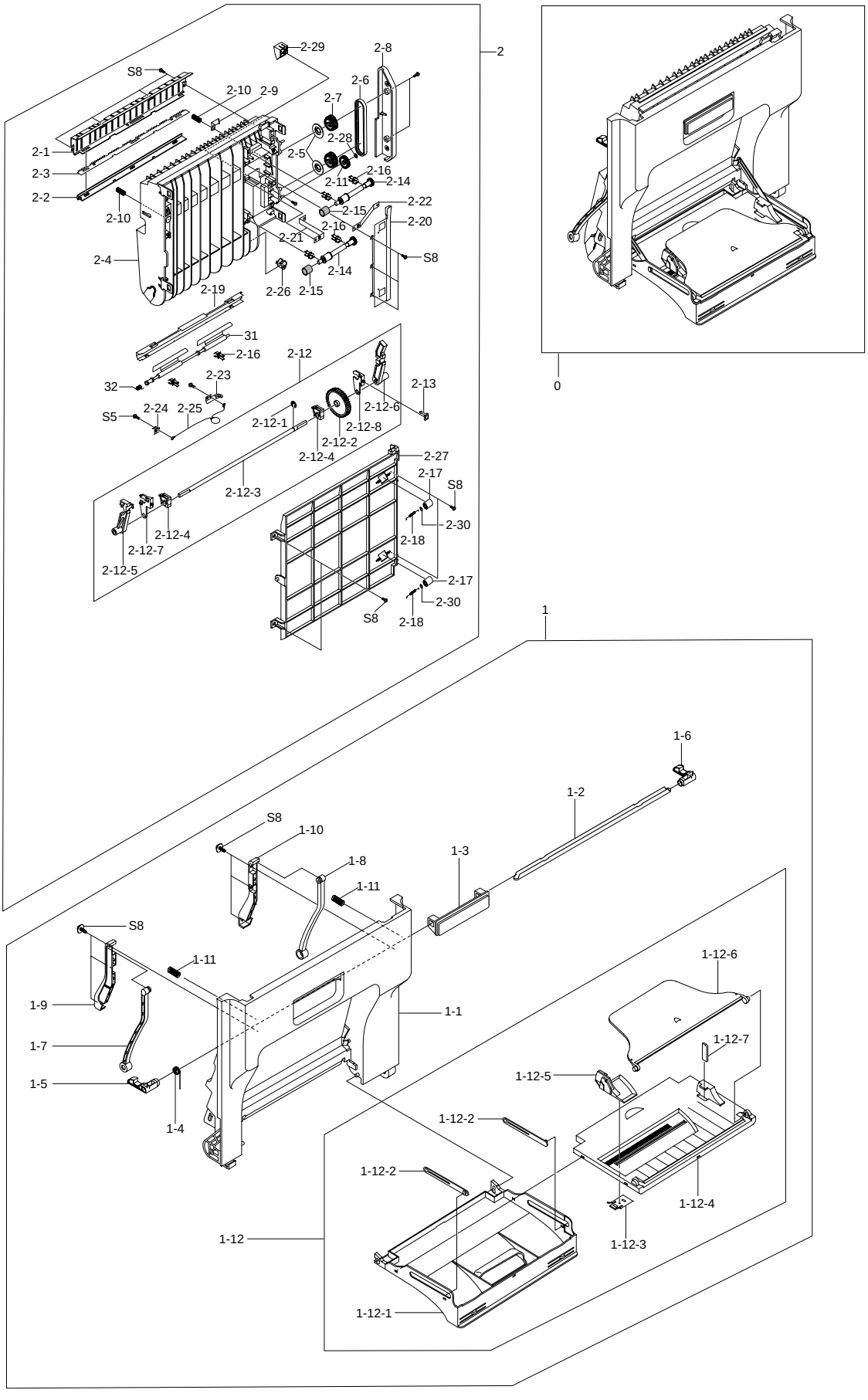


Exit Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA-EXIT	JC97-01754A	1	O	
1	PMO-COVER EXIT	JC72-01099A	1	O	
2	PMO-C/EXIT LOCK COVER	JC72-01217A	1	O	
3	IPR-COVER EXIT BAR	JC70-00440A	1	O	
4	PMO-COVER DUP LOCKER F	JC72-01081A	1	X	
5	PMO-COVER DUP LOCKER R	JC72-01082A	1	X	
6	SPRING-TS	6107-001209	2	X	LOCKER
7	PMO-COVER EXIT GUIDE	JC72-01098A	1	O	
8	PMO-COVER EXIT F CAP	JC72-01097A	1	O	
9	COVER-EXIT R CAP	JC63-00174A	1	O	
10	IPR-COVER EXIT HINGE	JC70-00372A	1	O	
11	MEA UNIT-EXIT FRAME	JC97-01763A	1	O	
11-1	PMO-GUIDE EXIT UPPER	JC72-01103A	1	O	
11-2	ROLLER-EXIT DRIVE	JC66-00607A	1	O	
11-2-1	ROLLER-EXIT-IDLE	JC66-00694A	1	X	
11-3	PMO-BEARING LARGE DP	JC72-00885A	1	O	
11-4	IPR-GROUND EXIT	JC70-00374A	1	O	
11-5	PMO-BEARING LARGE DP	JC72-40978A	1	O	
11-6	GEAR-DUPLEX	JC66-40912A	1	O	
11-7	RING-C	6044-000159	1	X	
11-8	GEAR-DP,IDLE	JC66-40911A	3	X	
11-9	RING-CS	6044-000001	3	X	
11-10	BRUSH ANTISTATIC	JC67-00065A	1	O	
11-11	PMO-HOLDER GROUND BALL	JC72-01233A	1	O	
11-12	PMO-GUIDE EXIT LOWER	JC72-01102A	1	O	
11-13	PMO-ROLLER FD F	JC72-41007A	4	O	
11-14	PMO-ROLLER FD R	JC72-41008A	4	O	
11-15	HOLDER-EXIT(MC)	JC61-00547A	4	O	
11-16	SPRING ETC-EXIT LOWER IDLE	JC61-00484A	4	O	
11-17	ROLLER-EXIT IDLE	JC66-00608A	1	O	
11-18	PEX-ROLLER EXIT F_UP	JC72-20901A	2	O	
11-19	IPR-GROUND EXIT PLATE	JC70-00375A	1	O	
11-20	MEA UNIT-TERMINAL:L	JC97-01410A	2	O	
11-20-1	SPRING ETC-HV SMALL	JC61-70930A	1	O	
11-20-2	ICT-SHAFT HV LARGE	JC70-40912A	1	O	
11-21	SPRING-ETC-CLUTCH	JB61-70922A	3	O	
11-22	SHEET-EXIT UPPER	JC63-00265A	1	O	
11-S8	SCREW-TAPTITE	6003-000196	4	X	
12	LABEL(P)-EXIT	JC68-01150A	1	X	
13	GUIDE-EXIT REAR	JC61-00850A	1	O	
S8	SCREW-TAPTITE	6003-000196	12	X	
S14	SCREW-TAPTITE	6003-001256	2	X	
S19	SCREW-TAPTITE	6003-000008	4	X	

9.6 Duplex Ass'y Exploded View



Duplex Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

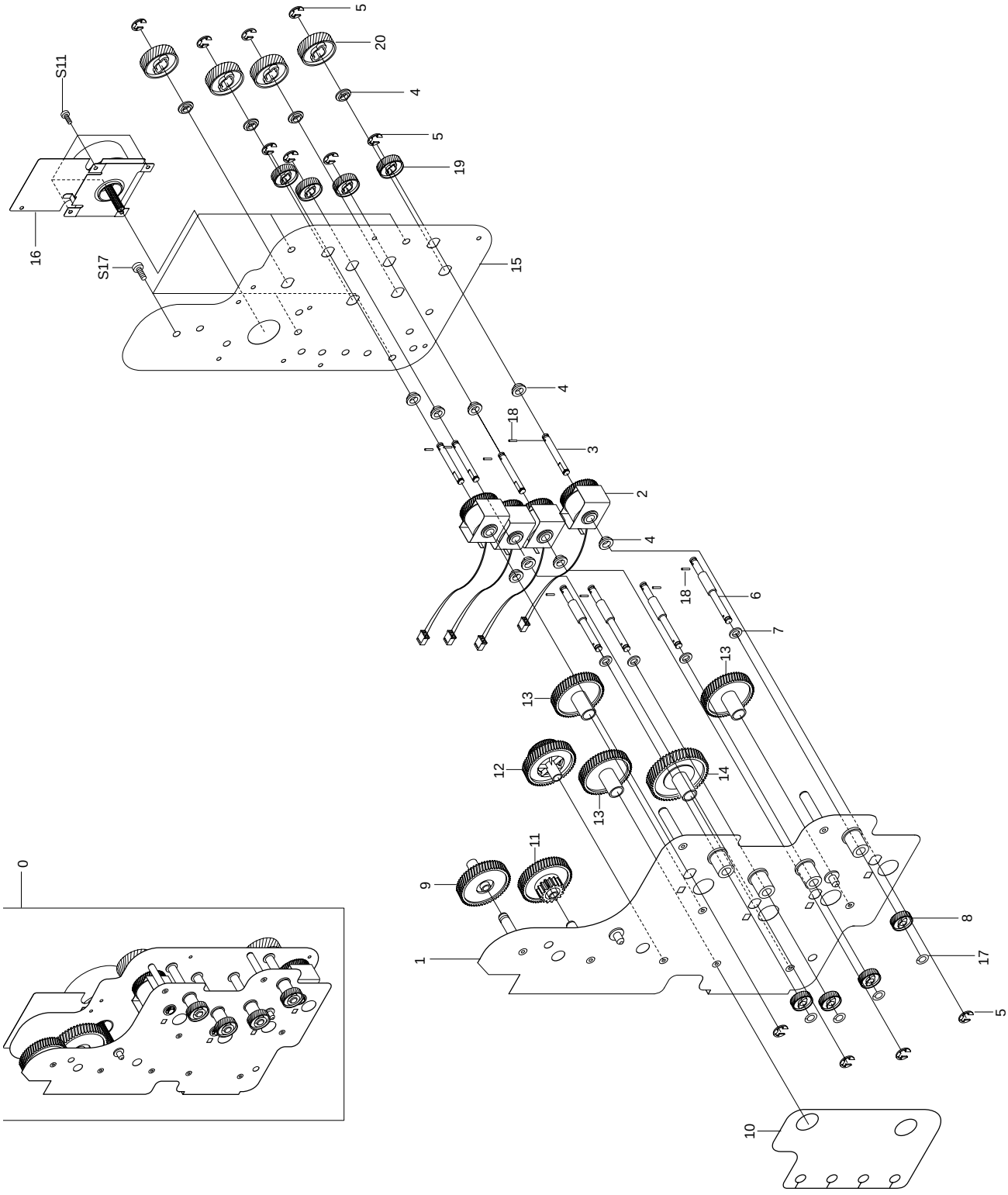
No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA-DUPLEX	JC97-01756A	1	O	
1	MEA HOU-COVER RIGHT	JC97-01758A	1	O	
1-1	PMO-COVER DUPLEX	JC72-01078A	1	O	
1-2	IPR-COVER DUP LOCK SHAFT	JC70-00370A	1	O	
1-3	PMO-COVER DUPLEX HANDLE	JC72-01079A	1	X	
1-4	SPRING-TS	6107-001206	1	O	
1-5	PMO-COVER DUP LOCKER F	JC72-01081A	1	X	
1-6	PMO-COVER DUP LOCKER R	JC72-01082A	1	X	
1-7	PMO-COVER DUPLEX LINK	JC72-01080A	1	O	
1-8	COVER-DUPLEX LINK R	JC63-00172A	1	O	
1-9	PMO-COVER DUPLEX RAIL	JC72-01083A	1	O	
1-10	COVER-DUPLEX RAIL R	JC63-00173A	1	O	
1-11	SPRING CS(FEED)	6107-001944	2	O	
1-12	MEA UNIT-TRAY MP	JC97-01759A	1	O	
1-12-1	PMO-TRAY CASE MP	JC72-01096A	1	X	
1-12-2	PMO-TRAY LINK MP	JC72-00857B	2	X	
1-12-3	IPR-GUIDE LATCH	JB70-10906A	1	X	
1-12-4	PMO-TRAY COVER MP	JC72-00777B	1	O	
1-12-5	PMO-SIDE GUIDE MP	JC72-00547H	1	X	
1-12-6	PMO-TRAY EXIT MP	JC72-00778B	1	X	
1-12-7	LABEL(R)-HEIGHT,MP	JC68-00697A	1	X	
2	MEA UNIT-DUPLEX	JC97-01828A	1	O	
2-1	IPR-BRKT GUIDE A	JC70-00361A	1	O	
2-2	HOLDER-M-SAW	JC61-00841A	1	O	
2-3	IPR-PLATE SAW	JC70-10232A	1	O	
2-4	PMO-FRAME DUPLEX	JC72-01084A	1	O	
2-5	PMO-PULLEY BELT	JC72-01094A	2	O	
2-6	BELT-TIMMING	JC66-20901A	1	O	
2-7	GEAR-DUPLEX IDLER_Z25	JC66-00513A	2	O	
2-8	PMO-COVER BELT	JC72-01077A	1	O	
2-9	IPR-BRKT GROUND TR	JC70-00367A	1	O	
2-10	SPRING-CS(ETC-TR)	6107-001202	2	X	
2-11	GEAR-MP/DUP DRV	JC66-00346A	1	O	
2-12	MEA UNIT-T2	JC97-01761A	1	O	
2-12-1	RING-E	6044-000231	1	X	
2-12-2	GEAR-TRANSFER IDLER_Z47	JC66-00515A	1	X	
2-12-3	SHAFT-GUIDE TR	JC66-00619A	1	X	
2-12-4	PMO-HOLDER TRANSFER	JC72-01087A	2	X	
2-12-5	PMO-LEVER TR FRONT	JC72-01090A	1	X	
2-12-6	PMO-LEVER TR REAR	JC72-01091A	1	X	
2-12-7	PMO-LINK TR FRONT	JC72-01092A	1	X	
2-12-8	PMO-LINK TR REAR	JC72-01093A	1	O	

Duplex Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
2-13	IPR-BRKT GROUND TR1	JC70-00368A	1	O	
2-14	PMO-SHAFT DUP DRIVER	JC72-00764A	2	O	
2-15	RPR-RUBBER EXIT	JC73-10203A	2	O	
2-16	PMO-BUSHING TX(B4)	JG72-40744A	6	O	
2-17	PMO-ROLLER_EXIT	JC72-40361A	2	O	
2-18	SPRING ETC-FUSER EXIT	JC61-70976A	2	O	
2-19	IPR-BRKT GUIDE B	JC70-00362A	1	O	
2-20	IPR-BRKT GUIDE DUPLEX	JC70-00369A	1	O	
2-21	IPR-BRKT GROUND B	JC70-00364A	1	O	
2-22	IPR-BRKT GROUND A	JC70-00363A	1	O	
2-23	IPR-BRKT GROUND D	JC70-00366A	1	O	
2-24	IPR-BRKT GROUND C	JC70-00365A	1	O	
2-25	CBF HARNESS-OPE GROUND	JC39-00036A	1	O	
2-26	PMO-BUSHING FEED	JC72-00730A	1	O	
2-27	PMO-GUIDE LOWER DUPLEX	JC72-01086A	1	O	
2-28	RING-CS	6044-000001	1	O	
2-29	PMO-GUIDE FEED	JC72-01085A	1	O	
2-30	WASHER-PLAIN	6031-001051	1	X	
2-31	GUIDE-M-PAPER T2	JC61-00866A	2	X	
2-32	SPRING ETC-ACTUATOR6G	JC61-00485A	1	X	
S5	SCREW-TAPTITE	6003-000119	19	X	
S8	SCREW-TAPTITE	6003-000196	19	X	

9.7 Deve-Drive Ass'y Exploded View

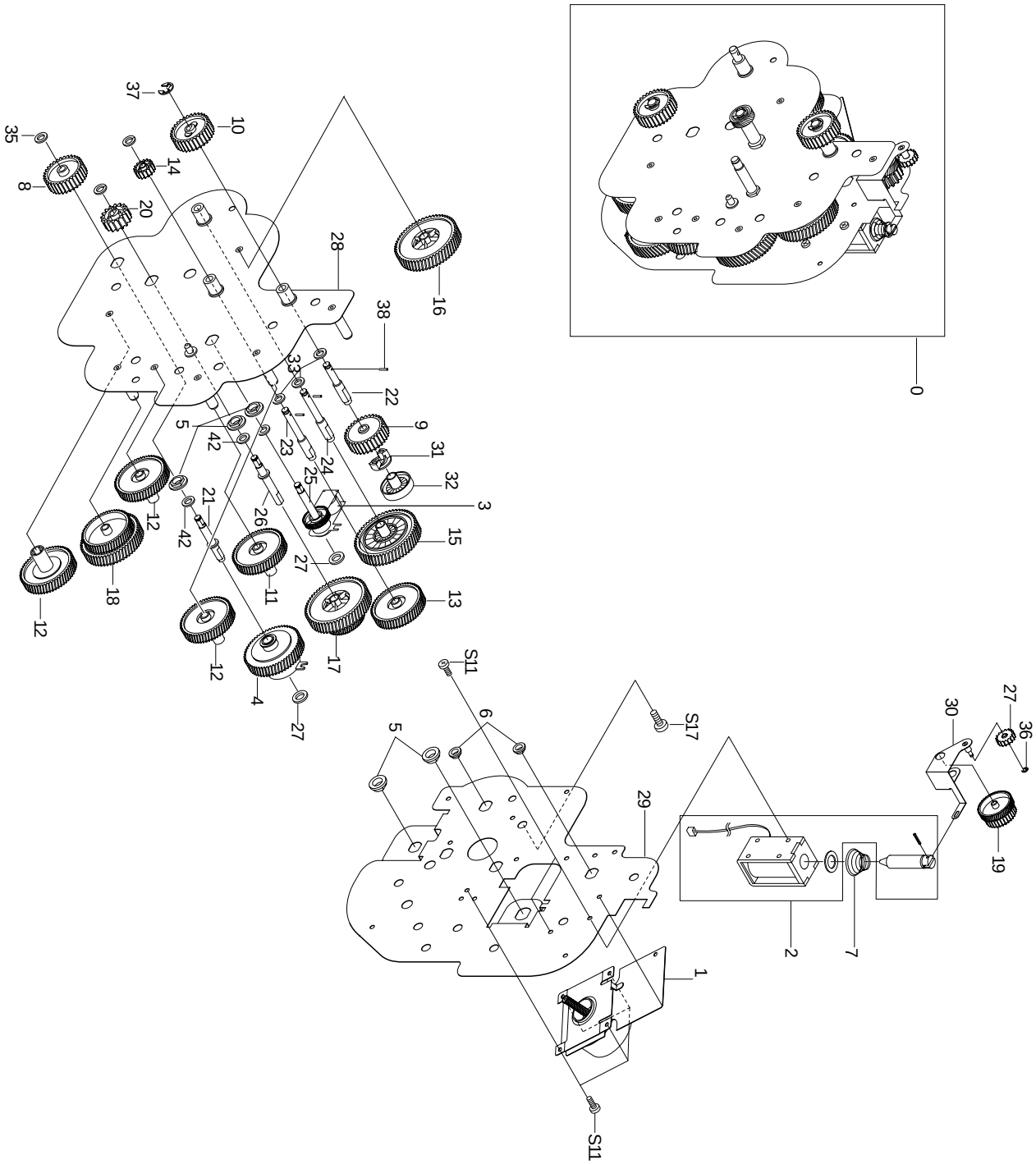


Deve-Drive Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA UNIT-DEVE DRIVE	JC96-02772A	1	O	
1	IPR-BRKT-DEVE FRONT	JC70-00342A	1	O	
2	MEP-CLUTCH SPRING DEVE	JC47-00006A	4	O	
3	SHAFT-DEVE CLUTCH	JC66-00544A	4	O	
4	BUSH-D6/L4	JC61-00699A	12	X	
5	RING-E	6044-000125	12	O	
6	SHAFT-DEVE DRIVE	JC66-00545A	4	X	
7	WASHER-PLAIN	6031-000023	4	O	
8	GEAR-DEVE DRIVE 2_Z20	JC66-00465A	4	O	
9	GEAR-DEVE IDLE Z51	JC66-00473B	1	O	
10	SHEET-HARNESS GUIDE	JC63-00264A	1	O	
11	GEAR-ITB CLEAN RDCN	JC66-00469A	1	O	
12	GEAR-DEVE RDCN	JC66-00468A	1	O	
13	GEAR-DEVE IDLE_Z41	JC66-00466A	3	O	
14	GEAR-DEVE IDLE_Z53	JC66-00467A	1	O	
15	IPR-BRKT-DEVE REAR	JC70-00343A	1	O	
16	MOTOR DC-MAIN(BLDC)	JC31-00021 A	1	O	
17	WASHER-PLAIN	6031-001255	4	O	
18	ICT-PIN ADF	JB70-00168A	12	O	
19	GEAR-DEVE DRIVE 1_Z25	JC66-00464A	4	O	
20	GEAR-DEVE CLUTCH 2_Z33	JC66-00463A	4	O	
S11	SCREW-TAPTITE	6003-000269	4	X	
S17	SCREW-TAPTITE	6003-000301	5	X	

9.8 Main-Drive Ass'y Exploded View

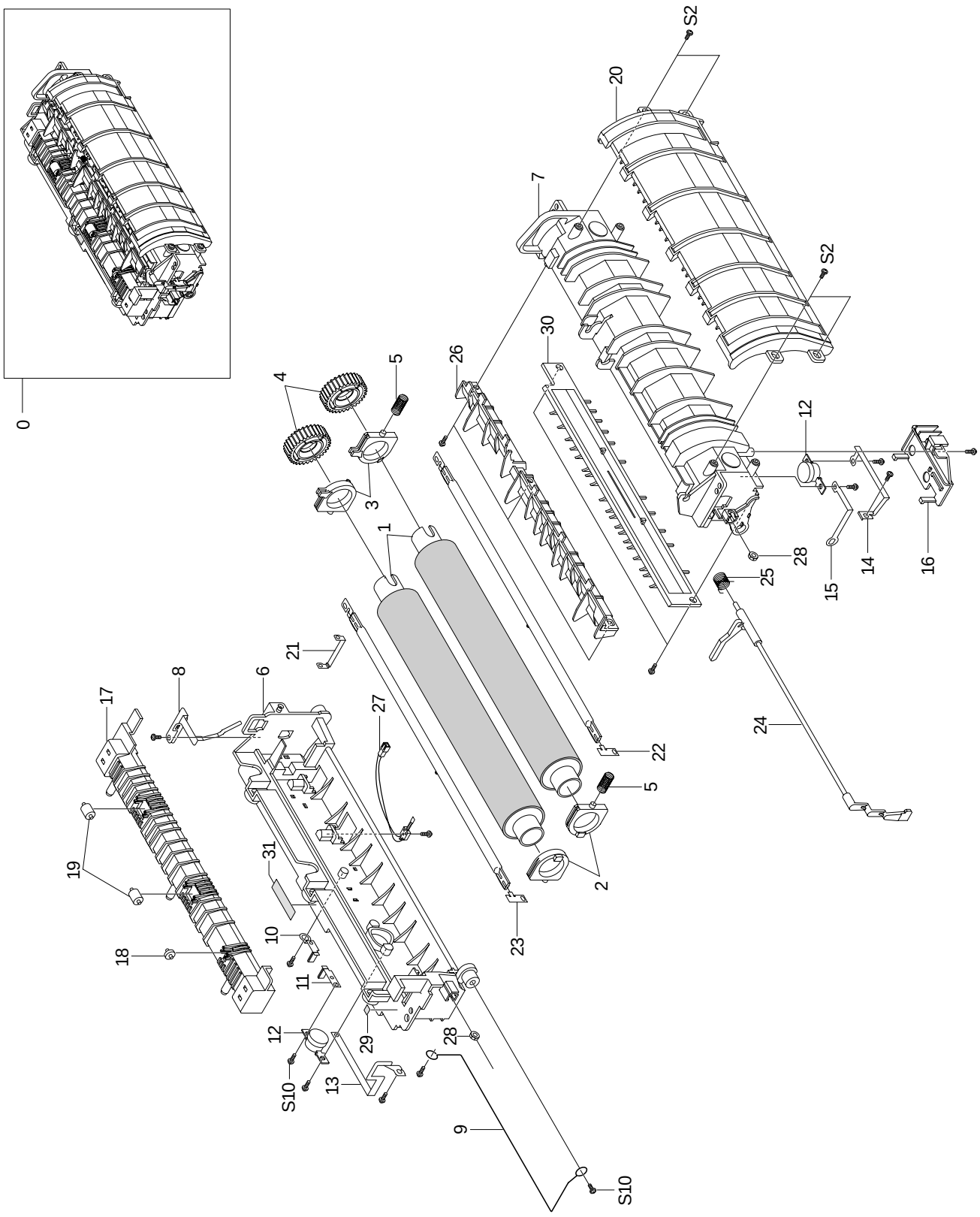


Main-Drive Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA UNIT-MAIN DRIVE	JC96-02771A	1	O	
1	MOTOR DC-MAIN(BLDC)	JC31-00021A	1	O	
2	SOLENOID-DUPLEX	JC33-00008B	1	O	
3	MEP-CLUTCH CAM SOLENOID	JC47-00007A	1	O	
4	MEP-CLUTCH ELECTRIC FEED	JC47-00008A	1	O	
5	BUSH-8/5	JC61-00426A	3	O	
6	BUSH-D6/L4	JC61-00699A	6	O	
7	SPRING ETC-SOLENOID DP	JC61-70915A	1	O	
8	GEAR-FEED DRIVE_Z37	JC66-00470A	1	O	
9	GEAR-FUSER DRIVE 1_Z47	JC66-00471A	1	O	
10	GEAR-FUSER DRIVE 2_Z30	JC66-00472A	1	O	
11	GEAR-IDLE Z51	JC66-00473A	1	O	
12	GEAR-IDLE Z53	JC66-00474A	3	O	
13	GEAR-ITB DRIVE 1_Z90	JC66-00475A	1	O	
14	GEAR-ITB DRIVE 2_Z30	JC66-00476A	1	O	
15	GEAR-OPC DRIVE 1_Z120	JC66-00477A	1	O	
16	GEAR-OPC RDCN_Z120/Z60	JC66-00479A	1	O	
17	GEAR-RDCN Z110/Z37	JC66-00480A	1	O	
18	GEAR-RDCN Z62/Z48	JC66-00481A	1	O	
19	GEAR-SWING DRIVE	JC66-00482A	1	O	
20	GEAR-T2 DRIVE_Z25	JC66-00483A	1	O	
21	SHAFT-FEED DRIVE	JC66-00546A	1	O	
22	SHAFT-FUSER DRIVE	JC66-00547A	1	X	
23	SHAFT-ITB DRIVE	JC66-00549A	1	O	
24	SHAFT-OPC DRIVE	JC66-00550A	1	O	
25	SHAFT-T2 CAM	JC66-00551A	1	O	
26	SHAFT-T2 DRIVE	JC66-00552A	1	O	
27	"GEAR-EXIT/U,ID"	JC66-40211B	1	O	
28	IPR-BRKT MAIN FRONT	JC70-00341A	1	O	
29	IPR-BRKT MAIN REAR	JC70-00344A	1	O	
30	IPR-LINK SOLENOID	JC70-00346A	1	O	
31	PMO-HUB CLUTCH	JC72-01064A	1	O	
32	PMO-DUMMY CLUTCH	JC72-01232A	1	O	
33	WASHER-PLAIN	6031-000023	3	X	
34	WASHER-PLAIN	6031-001002	4	X	"ITB,Feed,T2"
35	WASHER-PLAIN	6031-001255	3	X	
36	RING-C	6044-000159	1	X	
37	RING-E	6044-000231	1	X	Fuser
38	ICT-PIN ADF	JB70-00168A	2	X	
42	WASHER-PLAIN	6031-001491	4	O	
S11	SCREW-TAPTITE	6003-000269	4	X	Motor + Brkt - Rear
S11	SCREW-TAPTITE	6003-000269	2	X	Solenoid - Duplex + Brkt - Rear
S17	SCREW-TAPTITE	6003-000301	4	X	

9.9 Fuser Ass'y Exploded View

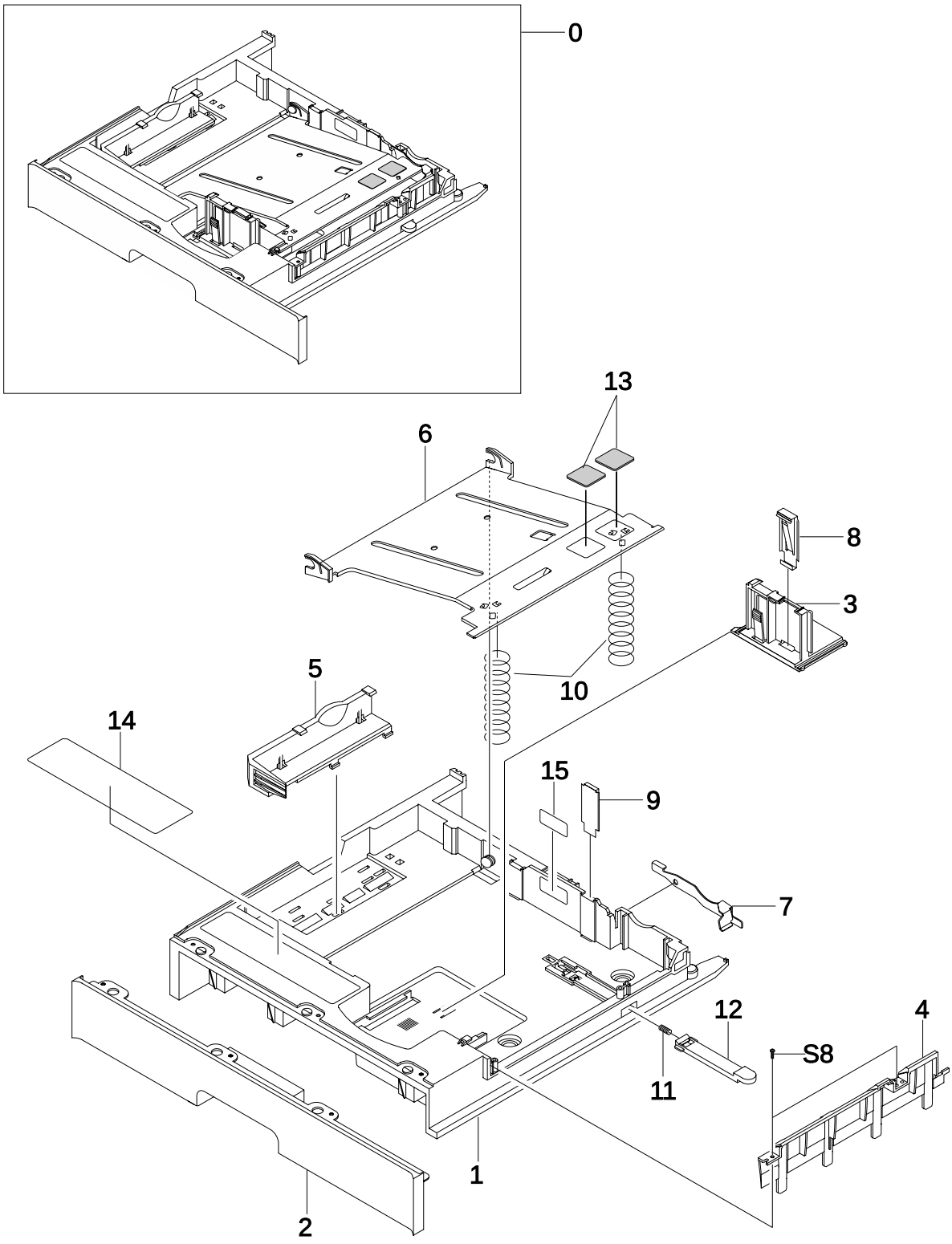


Fuser Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA UNIT-FUSER	JC96-02773A	1	O	220V
	ELA UNIT-FUSER	JC96-02773B	1	O	110V
1	ROLLER-HEAT	JC66-00516A	2	X	
2	PMO-BEARING FUSER F	JC72-01058A	2	X	
3	PMO-BEARING FUSER GEAR	JC72-01059A	2	X	
4	GEAR-FUSER_Z35	JC66-00510A	2	X	
5	SPRING ETC-PR	6107-001193	2	X	
6	PMO-FUSER UPPER	JC72-01061A	1	X	
7	PMO-FUSER LOWER	JC72-01062A	1	X	
8	IPR-GROUND FUSER	JC70-00355A	1	X	
9	NPR-ELECTRODE AC WIRE	JC71-00043A	1	O	
10	NPR-ELECTRODE GEAR	JC71-00047A	1	O	
11	NPR-ELECTRODE M	JC71-00048A	1	O	
12	THERMOSTAT	4712-000001	2	O	
13	NPR-ELECTRODE F	JC71-00046A	1	O	
14	NPR-ELECTRODE PR	JC71-00049A	1	O	
15	NPR-ELECTRODE AC PLATE	JC71-00044A	1	O	
16	PMO-COVER THERMOSTAT	JC72-01055A	1	O	
17	PMO-COVER CLEANING	JC72-01060A	1	O	
18	ROLLER-EXIT IDLE	JC66-00608A	1	O	
19	PEX-ROLLER EXIT F_UP	JC72-20901A	2	O	
20	PMO-GUIDE DP SIDE	JC72-01100A	1	O	
21	NPR-ELECTRODE CONNECTOR	JC71-00045A	1	O	
22	LAMP-HALOGEN, 300W	4713-001178	1	O	220V
	LAMP-HALOGEN, 300W	4713-001177	1	O	110V
23	LAMP-HALOGEN, 500W	4713-001176	1	O	220V
	LAMP-HALOGEN, 500W	4713-001175	1	O	110V
24	PMO-ACTUATOR EXIT	JC72-01056A	1	O	
25	SPRING ETC-ACTUATOR	6107-001205	1	X	
26	PMO-GUIDE OUTPUT	JC72-01063A	1	O	
27	THERMISTOR-NTC	1404-001310	1	O	
28	NUT-HEXAGON	6021-000222	4	X	
29	LABEL(R)-HV FUSER	JC68-00407A	1	X	220V
	LABEL(R)-HV FUSER	JC68-00408A	1	X	110V
30	PMO-GUIDE INPUT	JC72-01208A	1	O	
31	LABEL(P)-CAUTION,HOT_FU	JC68-30928E	1	X	
S10	SCREW-ASS'Y MACH	6006-001193	10	X	
S8	SCREW-TAPTITE	6003-000196	13	X	

9.10. Cassette Ass'y Exploded View

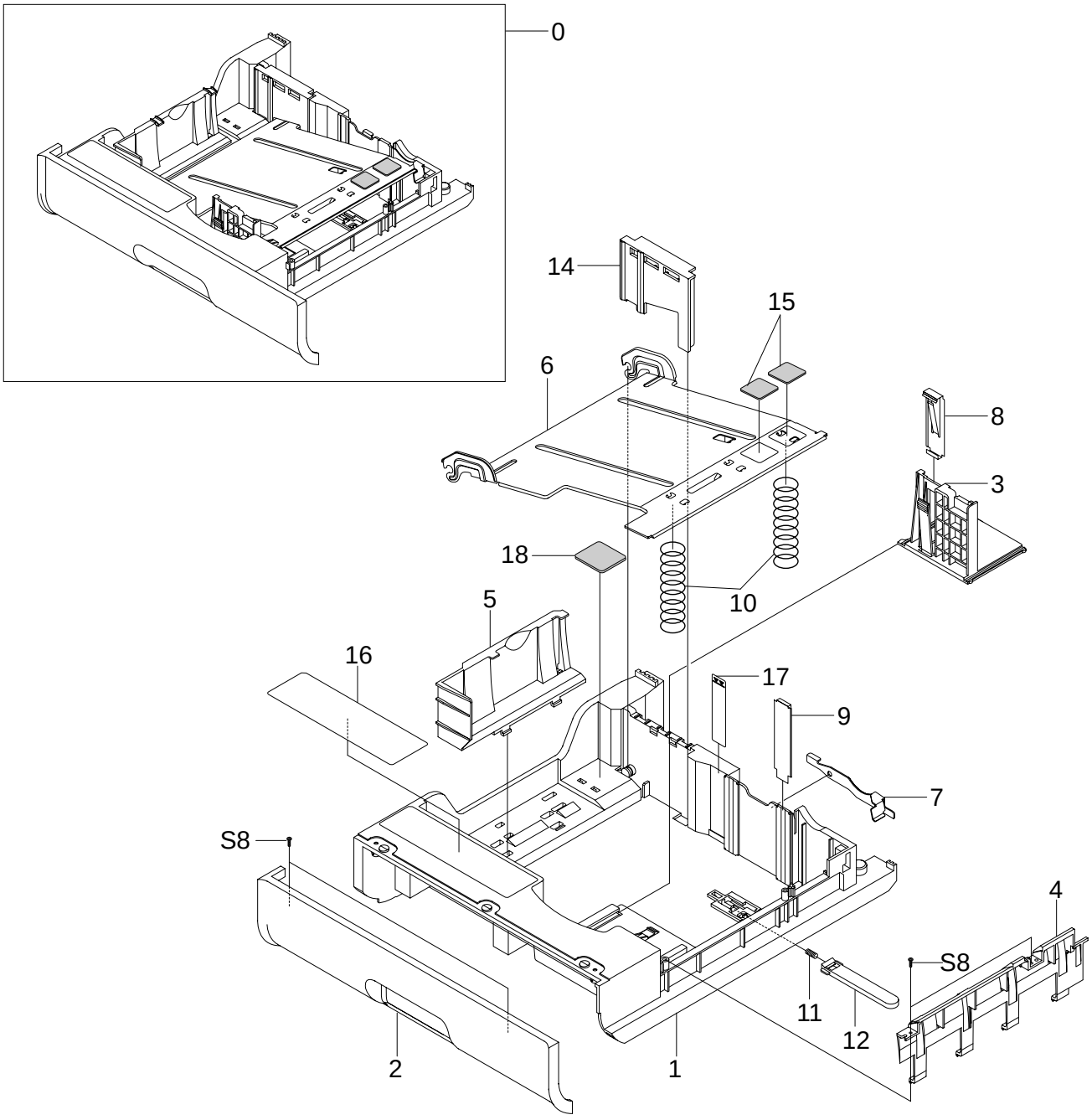


Cassette Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA-CASSETTE	JC97-01753A	1	O	
1	PMO-FRAME CASSETTE	JC72-01069A	1	O	
2	PMO-COVER CASSETTE	JC72-01068A	1	O	
3	PMO-GUIDE SIDE CST	JC72-01072A	1	O	
4	PMO-GUIDE FRONT CST	JC72-01070A	1	O	
5	PMO-GUIDE REAR	JC72-01071A	1	O	
6	IPR-PLATE K/UP	JC70-00357A	1	O	
7	IPR-FINGER	JC70-00220A	1	O	
8	IPR-SPRING PLATE G/SIDE	JC70-00358A	1	O	
9	IPR-GUIDE PLATE PAPER	JC70-00356A	1	O	
10	SPRING ETC-KNOCK UP(270)	6107-001200	2	X	
11	SPRING ETC-LOCKER	JG61-70531A	1	O	
12	PMO-LOCKER PLATE	JC72-01073A	1	O	
13	RPR-PAD CST	JC73-10910A	2	O	
14	LABEL(R)-INSTRUCTION	JC68-01174A	1	X	
15	LABEL(R)-HEIGHT XEROX	JC68-00516A	1	X	
S8	SCREW-TAPTITE	6003-000196	2	X	

9.11. SCF Cassette Ass'y Exploded View

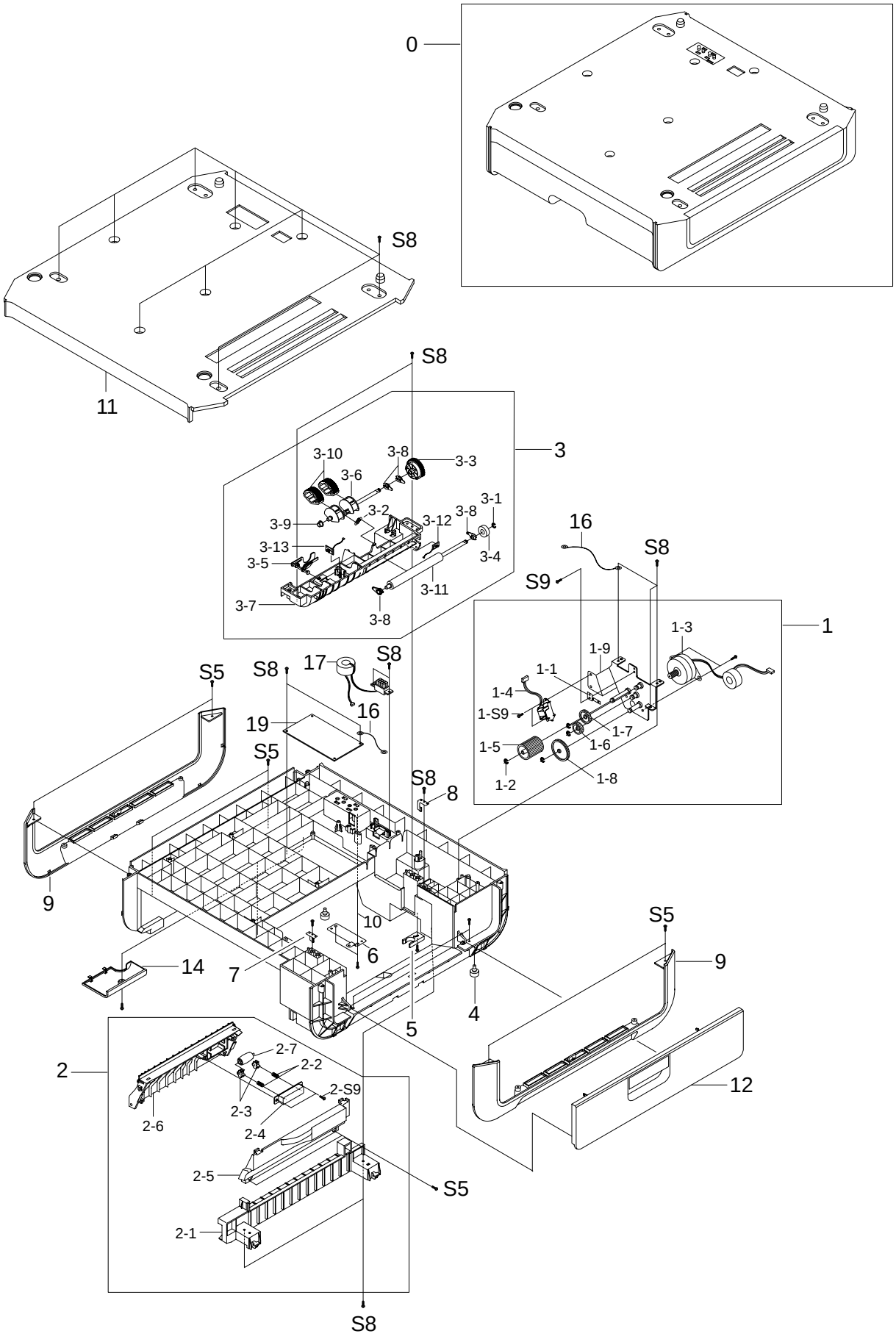


SCF Cassette Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA UNIT-CASSETTE SCF(LTR)	JC97-01809A	1	O	LETTER
	MEA UNIT-CASSETTE SCF(A4)	JC97-01809B	1	O	A4
1	PMO-FRAME CASSETTE(SCF)	JC72-01238A	1	X	
2	PMO-COVER CASSETTE(SCF)	JC72-01236A	1	X	
3	PMO-GUIDE SIDE(SCF)	JC72-01243A	1	X	
4	PMO-GUIDE FRONT CST	JC72-00798B	1	X	
5	PMO-GUIDE REAR(SCF)	JC72-01239A	1	X	
6	IPR-PLATE K/UP	JC70-00221A	1	X	
7	IPR-FINGER	JC70-00220A	1	X	
8	IPR-SPR PLATE G/SIDE	JC70-10929A	1	X	
9	IPR-GUIDE PLT PAPER	JC70-10923A	1	X	
10	SPRING-CS	6107-001190	2	X	LETTER
	SPRING-CS	6107-001213	2	X	A4
11	"SPRING ETC-LOCKER,PLATE"	JG61-70531A	1	X	
12	PMO-LOCKER PLATE	JC72-41210A	1	X	
14	PMO-DUMMY SIDE GUIDE(SCF)	JC72-01237A	1	X	
15	RPR-PAD CST	JC73-10910A	2	X	
16	LABEL(P)-INSTRUCTION CST	JC68-01174A	1	X	
17	LABEL(R)-HEIGHT CST	JC68-00709A	1	X	
18	LABEL(P)-LTR	JC68-01227A	1	X	LETTER
	LABEL(P)-A4	JC68-01232A	1	X	A4
S8	SCREW-TAPTITE	6003-000196	4	X	

9.12. Frame SCF Ass'y Exploded View



Frame SCF Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

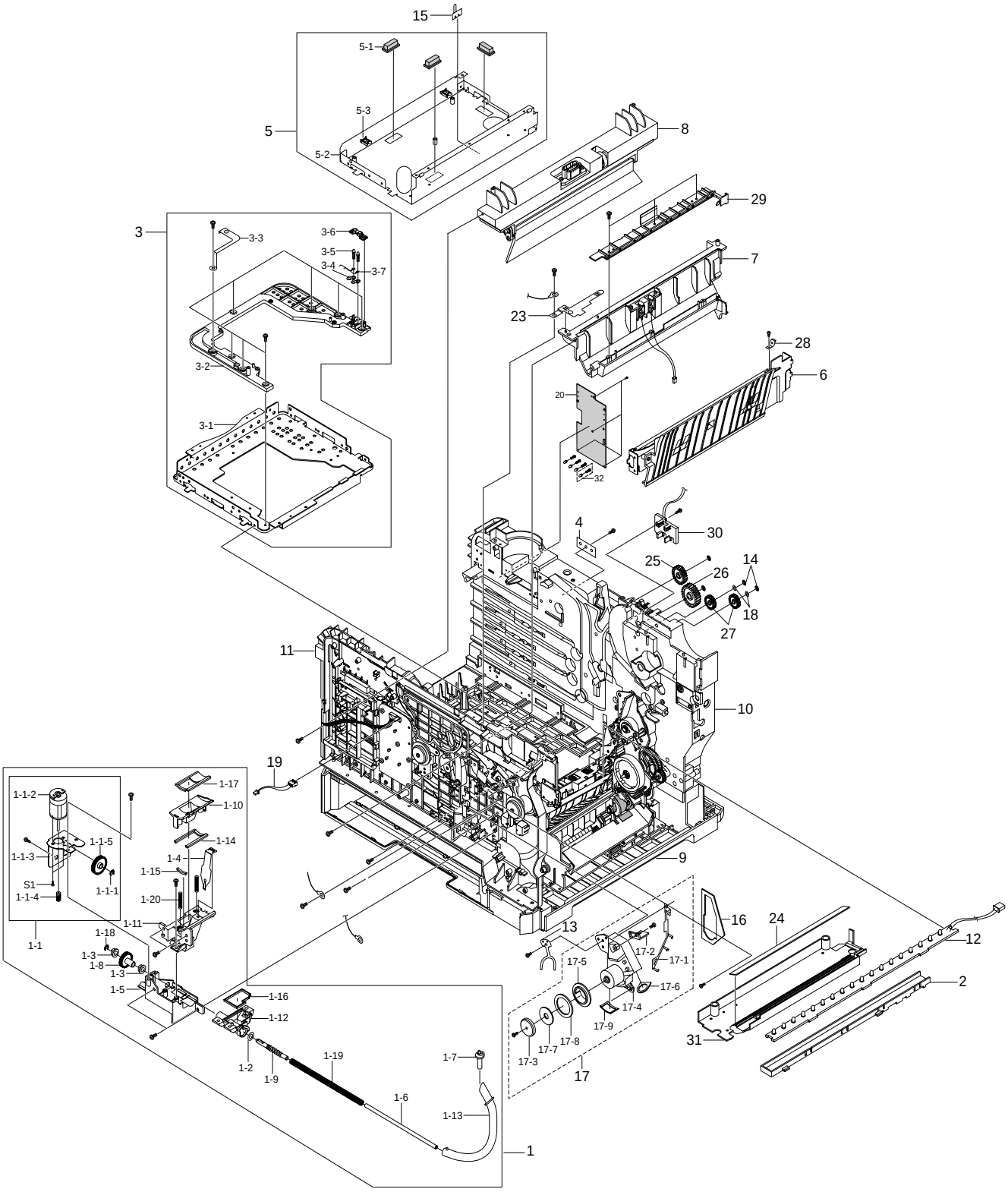
No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA BASE-FRAME SCF	JC97-01808A	1	X	
1	ELA HOU-MOTOR SCF	JC96-02283A	1	X	
1-1	IPR-GROUND_ROLLER	JC70-10467A	1	X	
1-2	RING-E	6044-000125	4	X	
1-3	MOTOR STEP-SCF	JC31-10501A	1	X	
1-4	SOLENOID-PICK UP	JC33-00007A	1	X	
1-5	GEAR-P/UP DRV SCF	JC66-00330A	1	X	
1-6	GEAR-IDLER OPTION	JC66-40365A	1	X	
1-7	GEAR-IDLE(Z=30)	JC66-40950A	1	X	
1-8	GEAR-IDLE(SCF)	JC66-40954A	1	X	
1-9	IPR-BRKT GEAR	JC70-00251A	1	X	
1-S9	SCREW-TAPTITE	6003-000266	5	X	
2	MEA HOU-GUIDE LOWER SCF	JC97-01825A	1	X	
2-1	PMO-GUIDE LOWER RAIL(SCF)	JC72-01242A	1	X	
2-2	SPRING CS	TBD	2	X	
2-3	PMO-BUSH IDLE ROLL-SCF16	JC72-00658A	2	X	
2-4	PMO-HOLDER IDLE ROLL16	JC72-00660A	1	X	
2-5	PMO-COVER GUIDE LOWER(SCF)	JC72-01066A	1	X	
2-6	PMO-GUIDE LOWER(SCF)	JC72-01241A	1	X	
2-7	PMO-ROLLER IDLE(SCF)	JC72-01244A	1	X	
2-S5	SCREW-TAPTITE	6003-000119	4	X	
3	MEA HOU-GUIDE UPPER SCF	JC97-01826A	1	X	
3-1	RING-E	6044-000231	1	X	
3-2	SPRING ETC-PICKUP	JC61-00482A	1	X	
3-3	GEAR-PICK UP	JC66-00326A	1	X	
3-4	GEAR-FEED (SCF)	JC66-40955A	1	X	
3-5	PMO-ACTUATOR EMPTY	JC72-00719A	1	X	
3-6	PMO-SHAFT PICK UP	JC72-00729A	1	X	
3-7	PMO-GUIDE UPPER(SCF)	JC72-01240A	1	X	
3-8	PMO-BEARING SHAFT	JC72-41191A	4	X	
3-9	"PMO-BUSHING_P/U,MP"	JC72-41364A	1	X	
3-10	RPR-RUBBER PICK UP	JC73-00086A	2	X	
3-11	RPR-ROLLER FEED SCF	JC73-00115A	1	X	
3-12	PBA SUB-SCF COVER SENSOR	JC92-01502A	1	X	
3-13	PBA SUB-SCF P_EMPTY SENSOR	JC92-01501A	1	X	
4	FOOT-ML80	JC61-40001A	2	X	
5	CAM-CATCH	JC66-00050A	1	X	
6	IPR-PLATE GROUND(A)	JC70-00249A	1	X	
7	IPR-PLATE LOCKER(L)	JC70-00377A	1	X	
8	IPR-PLATE LOCKER(R)	JC70-00378A	1	X	
9	PMO-BASE DECO(SCF)	JC72-01065A	2	X	
10	ELA UNIT-TERMINAL TR L	JC96-01672A	4	X	

Frame SCF Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
11	PMO-COVER TOP(SCF)	JC72-01209A	1	X	
12	PMO-DOOR SIDE(SCF)	JC72-01210A	1	X	
13	PMO-FRAME BASE(SCF)	JC72-01211A	1	X	
14	PMO-COVER SENSOR(SCF)	JC72-01235A	1	X	
16	CBF HARNESS-DRIVER GND	JB39-00065A	2	X	15 m/m
17	CBF HARNESS-SCF_8P	JC39-00102A	1	X	
19	PBA SUB-SCF	JC92-01539A	1	X	
S5	SCREW-TAPTITE	6003-000119	8	X	
S8	SCREW-TAPTITE	6003-000196	26	X	

9.13 Main Frame Exploded View



Main Frame Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

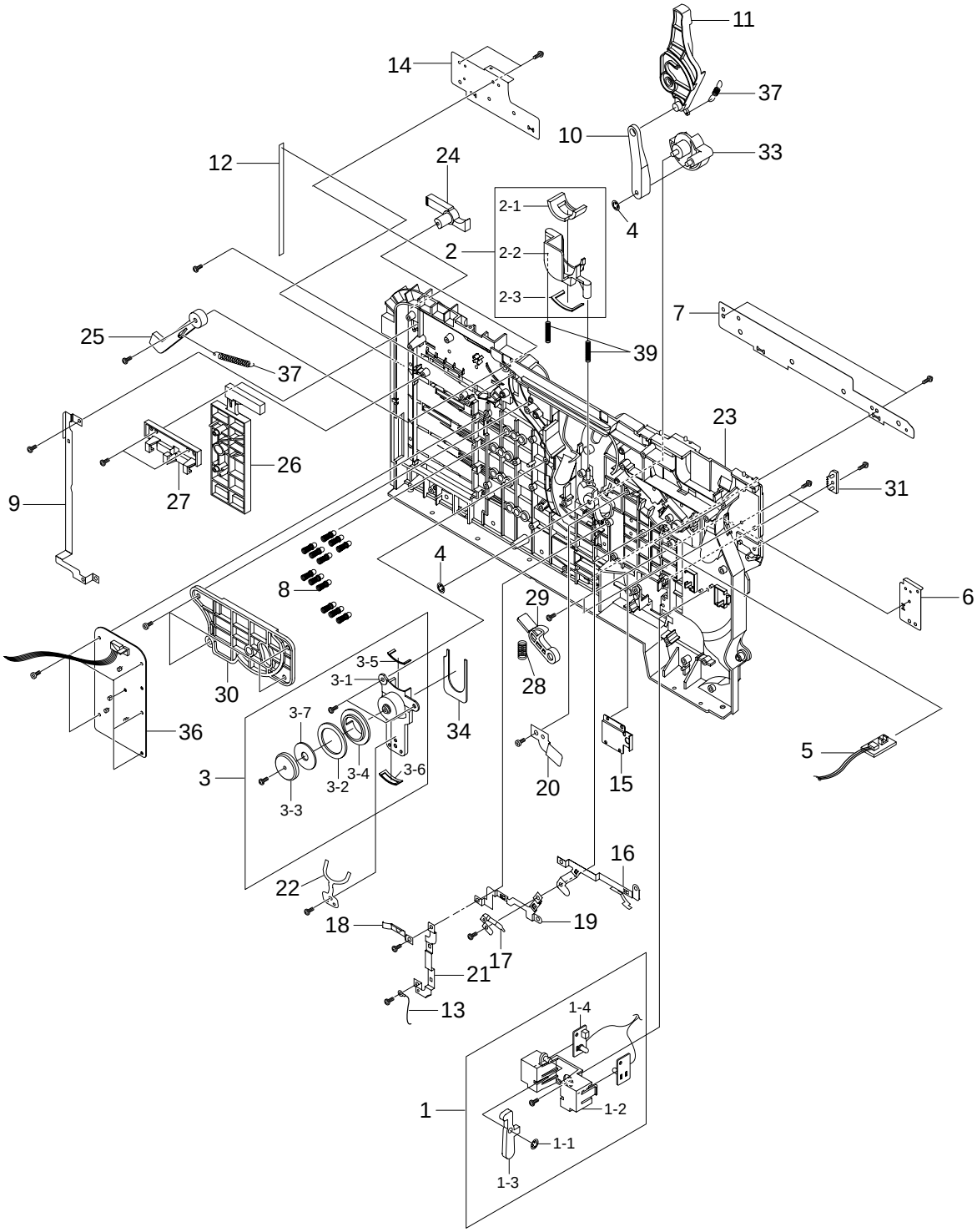
No.	Description	SEC.Code	Q'ty	SA	Remark
1	MEA UNIT-OPC TONER DUCT	JC97-01834A	1	X	
1-1	ELA UNIT-TONER MOTOR	JC96-02882A	1	O	
1-1-S1	SCREW-MACHINE	6001-000485	2	X	
1-1-1	RING-E	6044-000125	1	X	
1-1-2	MOTOR DC-WASTE TONER	JB31-00020B	1	O	
1-1-3	BRACKET-WASTER TONER MOTOR	JC61-00808A	1	X	
1-1-4	GEAR WORM-WHEEL IDLE	JC66-00653A	1	X	
1-1-5	GEAR WORM-WASTE TONER	JC66-00654A	1	X	
1-3	BUSH-D6/L4	JC61-00699A	2	X	
1-2	WASUER-PIAIN	6031-000023	1	X	
1-4	PLATE-VIBRATOR INLET	JC61-00810A	1	X	
1-5	BASE-M-WASTE TONER	JC61-00820A	1	X	
1-6	PIPE-WASTE BAR	JC62-00129A	1	X	
1-7	CAM-M-WASTE DUCT OUTLET	JC66-00649A	1	X	
1-8	GEAR WORM-WHEEL Z35	JC66-00651A	1	X	
1-9	SHAFT-M-WASTE DUCT INLET	JC66-00652A	1	X	
1-10	DUCT-M-WASTE LIFTER	JC67-00052A	1	X	
1-11	DUCT-M-WASTE TONER INLET1	JC67-00053A	1	X	
1-12	DUCT-M-WASTE TONER INLET2	JC67-00054A	1	X	
1-13	PMO-PIPE WASTE TRANSFER	JC72-01186A	1	X	
1-14	SPONGE-WASTE LIFTER 1	JC72-01278A	1	X	
1-15	SPONGE-WASTE LIFTER 2	JC72-01279A	1	X	
1-16	SPONGE-WASTE DUCT OPC	JC72-01285A	1	X	
1-17	SPONGE-WASTE COVER	JC72-01290A	1	X	
1-18	RING-E	6044-000125	1	X	
1-19	SPRING-CS	6107-001201	1	X	WASTE DUST OPC
1-20	SPRING-CS	6107-001199	2	X	ITB TONER LIFFER
1-S8	SCREW-TAPTITE	6003-000196	6	X	
2	HOLDER-ERASER	JC72-01218A	1	O	
3	MEA UNIT-LSU GUIDE BRKT	JC97-01810A	1	O	
3-1	IPR-BRKT LSU	JC70-00388A	1	O	
3-2	PMO-LSU BASE	JC72-01169A	1	O	
3-3	IPR-GROUND LSU	JC70-00444A	1	O	
3-4	IPR-PLATE OPC OEM	JC70-00428A	2	O	
3-5	MEA UNIT -TERMINAL S	JC97-01771A	2	X	
3-6	PMO-COVER OEM UPPER	JC72-01146A	1	O	
3-7	CBF HARNESS-OPC_FUSE	JC39-00229A	1	X	
3-S5	SCREW-TAPTITE	6003-000119	2	X	
3-S9	SCREW-TAPTITE	6003-000266	5	X	
4	SHEET-HV HARNESS	JC63-00248A	1	O	
5	MEA UNIT-BRKT HVPS	JC97-01767A	1	O	
5-1	GUIDE-HVPS BOARD	JC61-00838A	3	X	
5-2	IPR-BRKT HVPS LOWER	JC70-00386A	1	X	
5-3	CABLE CLMP	6502-000132	2	X	

Main Frame Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
6	ELA UNIT-GUIDE PAPER T2	JC96-02797A	1	O	
7	ELA UNIT-DUMMY FUSER BASE	JC96-02795A	1	O	
8	ELA UNIT-ITB CAM	JC96-02794A	1	O	
9	ELA UNIT-FRAME BASE	JC96-02881A	1	O	
10	ELA UNIT-FRAME REAR	JC96-02880A	1	O	
11	ELA UNIT-FRAME FRONT	JC96-02879A	1	O	
12	PBA SUB-ERASER	JC92-01450A	1	O	
13	IPR-SHUTTER TORTION	JC70-00447A	1	O	
14	RING-CS	6044-000001	4	X	
15	CABLE CLAMP	6502-000121	1	X	
16	SPONGE-DUST OPC COVER	JC72-01284A	1	X	
17	MEA UNIT-OPC TONER HOUSING	JC97-01814A	1	X	
17-1	PLATE-VIBRATOR OUTLET	JC61-00885A	1	X	
17-2	BUSH-M-WASTE CAM	JC61-00812A	1	X	
17-3	PMO-CAP SHUTTER ITB	JC72-01222A	1	X	
17-4	PMO-HOUSING TRANSFER	JC72-01228A	1	X	
17-5	PMO-SHUTTER TRANSFER OPC	JC72-01230A	1	X	
17-6	SPONGE-TANK TONER	JC72-01289A	1	X	
17-7	SPONGE-CAP SHUTTER	JC72-01292A	1	X	
17-8	SPONGE-DUCT TONER OPC	JC72-01294A	1	X	
17-9	SPONGE-TANK TONER OPC	JC72-01295A	1	X	
17-S5	SCREW-TAPTITE	6003-000119	2	X	
17-S8	SCREW-TAPTITE	6003-000196	1	X	
18	SPRING ETC-CLUTCH	JB61-70922A	2	X	
19	CBF HARNESS-WASTE_MOTOR	JC39-00299A	1	X	
20	ELA UNIT-DEVE DRIVE	JC96-02930A	1	O	
21	CBF HARNESS-MAIN FSR_ROLL	JC39-00276A	1	O	
22	CBF HARNESS-MAIN ERASER	JC39-00277A	1	O	
23	GROUND-FUSER FRAME	JC63-00165A	1	X	
24	SHEET-ERASER LAMP	JC63-00247A	1	O	
25	GEAR-GEAR FUSER DRV OUTER	JC66-00334A	1	X	
26	"GEAR-DP,IDLE"	JC66-40911A	1	X	
27	"GEAR-EXIT,IDLE(Z17)"	JC66-40964A	2	X	
28	IPR-GROUND PAPER GUIDE	JC70-00446A	1	O	
29	PMO-COVER FUSER BASE	JC72-01141A	1	O	
30	PMO-COVER HARNESS FUSER	JC72-01145A	1	O	
31	PMO-LSU SHUTTER COVER	JC72-01171A	1	O	
32	MEA UNIT-TERMINAL S	JC97-01771A	4	O	
S5	SCREW-TAPTITE	6003-000119	8	X	
S6	SCREW-TAPTITE	6003-000152	1	X	
S7	SCREW-TAPTITE	6003-000179	2	X	
S8	SCREW-TAPTITE	6003-000196	29	X	
S9	SCREW-TAPTITE	6003-000266	2	X	
S14	SCREW-TAPTITE	6003-001256	7	X	

9.14 Front Frame Exploded View



Front Frame Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

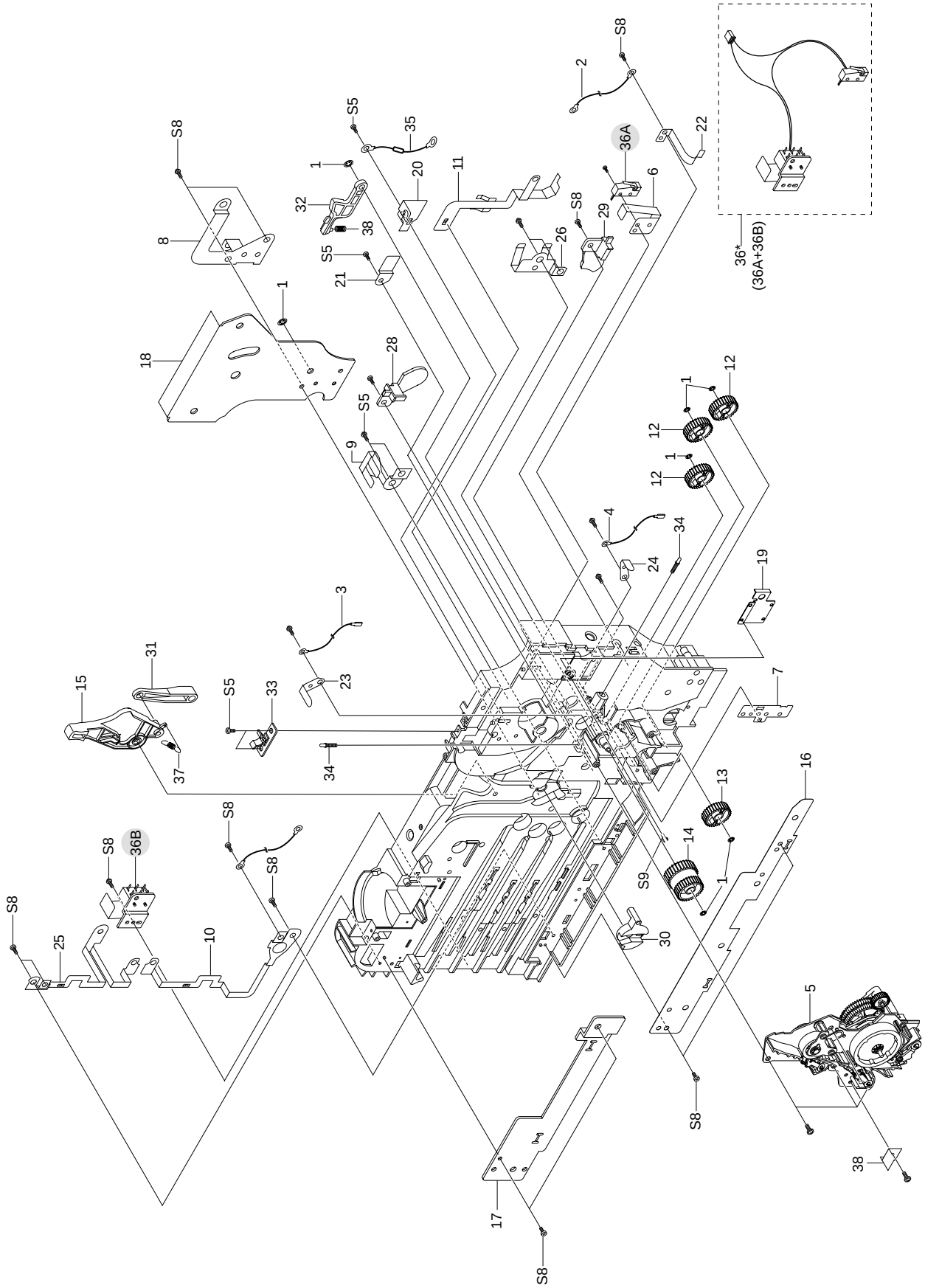
No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA UNIT-FRAME FRONT	JC96-02879A	1	X	
1	ELA UNIT-TONER SENSOR	JC96-02796A	1	X	
1-1	RING-CS	6044-000001	1	X	
1-2	HOLDER-M-WASTE TONER SENSOR	JC61-00813A	1	X	
1-3	PMO-TONER DETACTER	JC72-01189A	1	X	
1-4	PBA SUB-WASTE SENSOR	JC92-01452A	1	O	
2	MEA UNIT-ITB LIFTER	JC97-01812A	1	O	
2-1	SPONGE-DUCT TONER ITB LIFT	JC72-01282A	1	X	
2-2	DUCT-TONER ITB LIFTER	JC67-00043A	1	X	
2-3	SPONGE-ITB DUCT	JC72-01286A	1	X	
3	MEA UNIT-ITB TONER HOUSING	JC97-01813A	1	O	
3-1	HOUSING-M-WASTE TONER ITB	JC61-00814A	1	O	
3-2	SPONGE-DUCT TONER OPC	JC72-01294A	1	X	
3-3	PMO-CAP SHUTTER ITB	JC72-01222A	1	X	
3-4	PMO-SHUTTER TRANSFER ITB	JC72-01229A	1	X	
3-5	SPONGE-ITB TANK DUST	JC72-01287A	1	X	
3-6	SPONGE-ITB TANK TONER	JC72-01288A	1	X	
3-7	SPONGE-CAP SHUTTER	JC72-01292A	1	X	
3-S8	SCREW-TAPTITE	6003-000196	1	X	
4	RING-CS	6044-000001	3	X	
5	PBA SUB-EXIT SENSOR	JC92-01454A	1	X	
6	PLATE-GUIDE T2 FRONT	JC61-00709A	1	X	
7	BRACKET-DUMMY LSU F	JC61-00756A	1	X	
8	MEA UNIT-TERMINAL S	JC97-01771A	12	X	
9	GROUND-HVPS LSU	JC63-00166A	1	X	
10	LINK-LOCK OPC F	JC66-00562A	1	O	
11	LEVER-ITB LOCK FRONT	JC66-00666A	1	O	
12	LABEL(R)-COLOR BAR	JC68-01149A	1	X	
13	CBF HARNESS-BUSH GND	JC39-00114A	1	X	
14	IPR-BRKT GUIDE HVPS R	JC70-00385A	1	X	
15	IPR-BRKT EXIT HINGE F	JC70-00406A	1	O	
16	IPR-ITB HINGE GROUND	JC70-00419A	1	O	
17	IPR-ITB GUIDE TORSION	JC70-00420A	1	X	
18	IPR-OPC GUIDE TORSION	JC70-00421A	1	X	
19	IPR-OPC/ITB GROUND	JC70-00422A	1	X	
20	IPR-OPC LOCK FRONT	JC70-00423A	1	O	
21	IPR-OPC/LSU GROUND	JC70-00424A	1	X	
22	IPR-SHUTTER TORTION	JC70-00447A	1	X	
23	PMO-FRAME FRONT	JC72-01144A	1	X	

Front Frame Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
24	PMO-COVER TOP LEVER IN	JC72-01173A	1	O	
25	PMO-COVER TOP LEVER OUT	JC72-01174A	1	X	
26	PMO-DEVE OPEN PLATE	JC72-01177A	1	O	
27	PMO-DEV OPEN PLATE GUIDE	JC72-01178A	1	O	
28	SPRING-CS	6107-001196	1	X	ITB LOCK
29	PMO-LOCK ITB FRONT	JC72-01184A	1	O	
30	PMO-LOCK COVER FRONT	JC72-01185A	1	O	
31	PMO-RACK OPC	JC72-01221A	1	O	
32	SPRING-CS	6107-001199	2	X	ITB TONER LIFTER
33	PMO-GUIDE LOCK OPE F	JC72-01225A	1	O	
34	SPONGE-DUST ITB COVER	JC72-01283A	1	O	
36	PBA SUB-DEVE_OEM_KEY	JC92-01533A	1	O	
37	SPRING-CS	6107-001214	2	X	FRAME LOCK
S5	SCREW-TAPTITE	6003-000119	6	X	
S7	SCREW-TAPTITE	6003-000266	6	X	
S8	SCREW-TAPTITE	6003-000196	26	X	

9.15 Rear Frame Exploded View

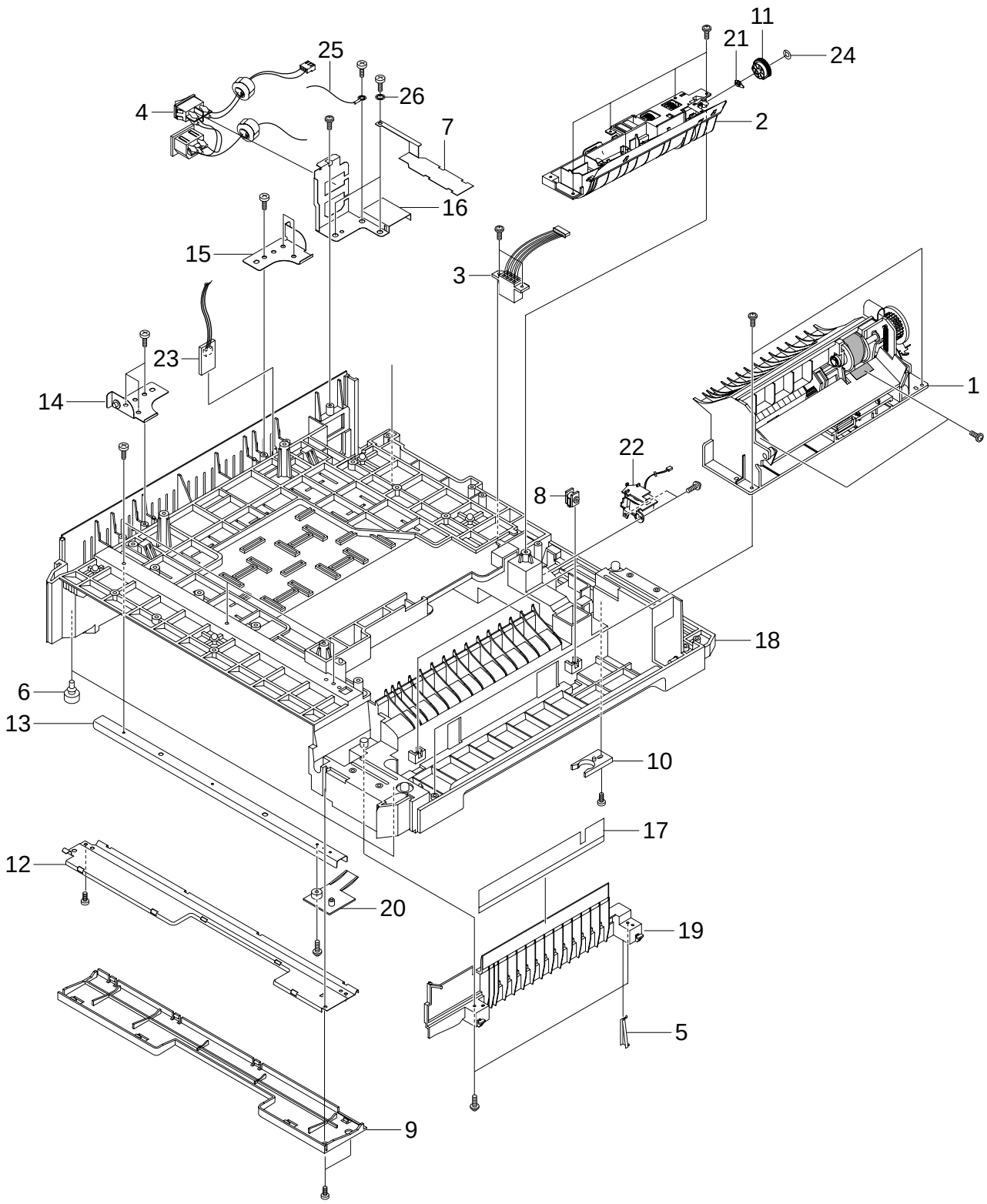


Rear Frame Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA UNIT-FRAME REAR	JC96-02880A	1	X	
1	RING-CS	6044-000001	7	X	
2	CBF HARNESS-HVPS_CHARGE	JC39-00264A	1	O	
3	CBF HARNESS-HVPS_T1	JC39-00265A	1	O	
4	CBF HARNESS-HVPS_T2	JC39-00266A	1	O	
5	MEA UNIT-FEED	JC97-01829A	1	O	
6	PLATE-S/W DUPLEX	JC61-00707A	1	O	
7	PLATE-GUIDE T2 REAR	JC61-00708A	1	O	
8	GROUND-MAIN ITB DEVE	JC63-00162A	1	O	
9	GROUND-LSU DEVE DRIVE	JC63-00163A	1	O	
10	GROUND-HVPS LSU LOWER	JC63-00181A	1	O	
11	GROUND-EXIT DRIVE	JC63-00208A	1	O	
12	GEAR-RDCN FEED OUTER	JC66-00343A	3	O	
13	GEAR-T2 IDEL_Z27	JC66-00484A	1	O	
14	GEAR-T2 RDCN_Z32/Z23	JC66-00485A	1	O	
15	LEVER-ITB LOCK REAR	JC66-00667A	1	O	
16	IPR-BRKT DUMMY LSU R	JC70-00381A	1	O	
17	IPR-BRKT GUIDE HVPS F	JC70-00384A	1	O	
18	IPR-BRKT LOCK ITB	JC70-00387A	1	O	
19	IPR-BRKT EXIT HINGE R	JC70-00407A	1	O	
20	IPR-PLATE FUSER	JC70-00425A	1	O	
21	IPR-PLATE LOCK ITB	JC70-00426A	1	O	
22	IPR-PLATE OPC HV	JC70-00427A	1	O	
23	IPR-PLATE T1	JC70-00431A	1	O	
24	IPR-PLATE T2	JC70-00432A	1	O	
25	IPR-GROUND HVPS	JC70-00443A	1	O	
26	IPR-GROUND MAIN	JC70-00445A	1	O	
27	PMO-FRAME REAR	JC72-01143A	1	O	
28	PMO-COVER T1 HV	JC72-01148A	1	O	
29	PMO-COVER T2 HV	JC72-01149A	1	O	
30	PMO-GUIDE LOCK OPC	JC72-01157A	1	O	
31	PMO-LINK LOCK OPC	JC72-01158A	1	O	
32	PMO-LOCK ITB	JC72-01168A	1	O	
33	PMO-HOLDER GUIDE EXIT UP	JC72-01216A	1	O	
34	MEA UNIT-TERMINAL S	JC97-01771A	2	X	
35	CBF HARNESS-100M_GNDS	JC39-00302A	1	X	
36	ELA UNIT-COVER OPEN SENSOR	JC96-02876A	1	O	
37	SPRING-ES	6107-001214	1	X	
38	SPRING-CS	6107-001196	1	X	
S5	SCREW-TAPTITE	6003-000119	6	X	
S6	SCREW-TAPTITE	6003-000152	1	X	
S8	SCREW-TAPTITE	6003-000196	42	X	
S9	SCREW-TAPTITE	6003-000266	6	X	

9.16 Base Frame Exploded View

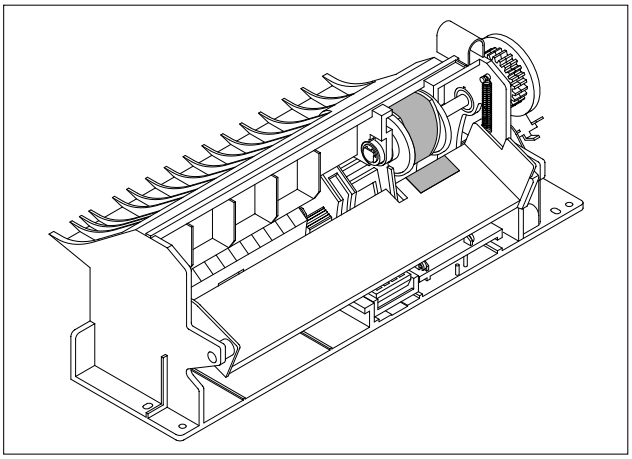


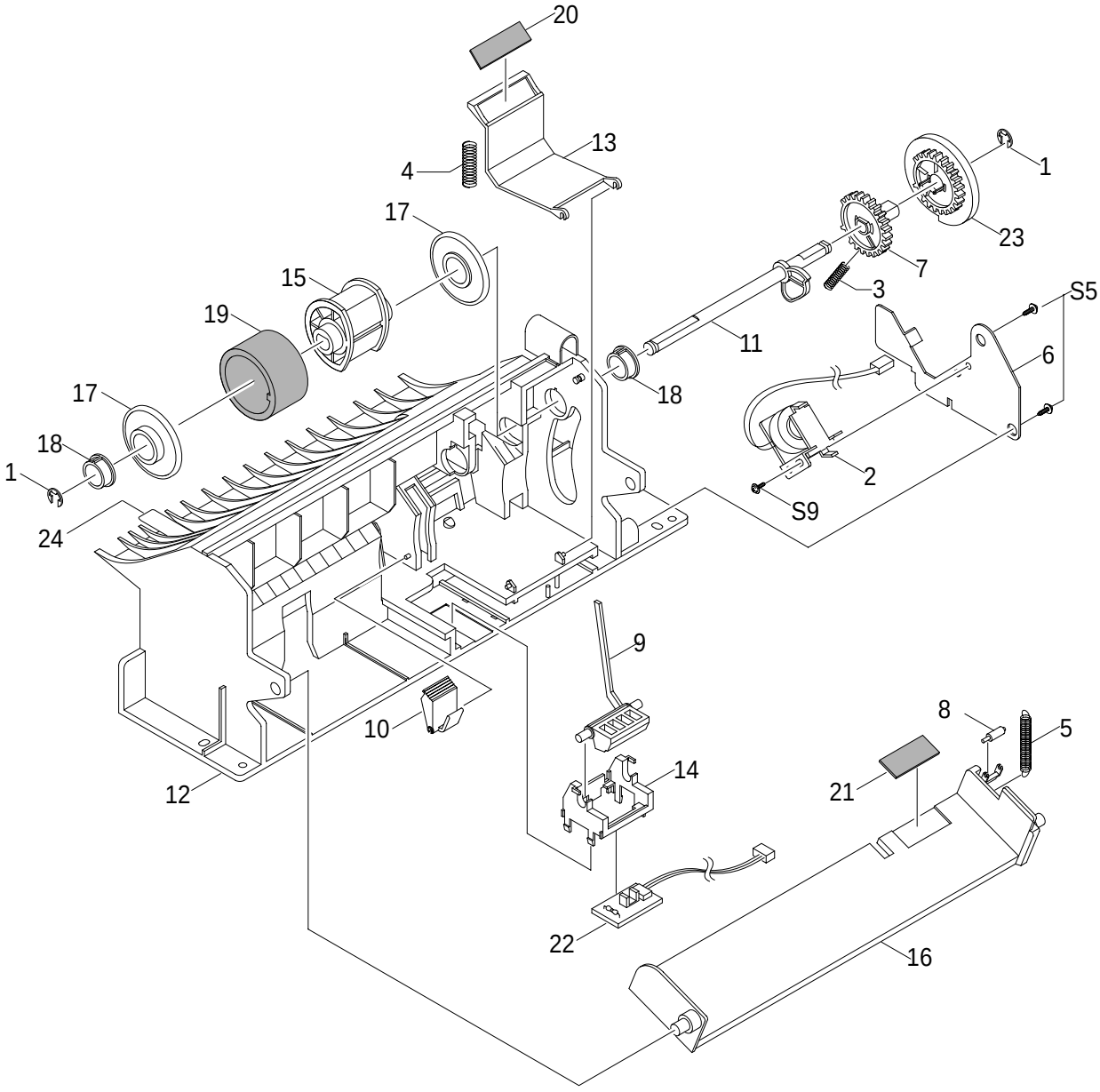
Base Frame Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA UNIT-FRAME BASE	JC96-02881A	1	X	
1	ELA UNIT-MP	JC96-02774A	1	O	
2	MEA-PICKUP	JC97-01755A	1	O	
3	CBF HARNESS-SCF	JC39-00082A	1	O	
4	CBF HARNESS-SMPS_INLET	JC39-00280A	1	O	
5	PLATE-GUIDE RAIL	JC61-00710A	1	O	
6	FOOT-ML80	JC61-40001A	2	O	
7	GROUND-SCF	JC63-00167A	1	O	
8	COVER-SCREW LOCKING MP	JC63-00175A	2	O	
9	COVER-M-BASE BAR	JC63-00207A	1	O	
10	CAM-CATCH	JC66-00050A	1	O	
11	GEAR-PICK_UP	JC66-00335A	1	O	
12	IPR-BRKT BASE BAR	JC70-00379A	1	O	
13	IPR-CHANNEL FRAME BASE	JC70-00390A	1	O	
14	IPR-BRKT DEVE HINGE F	JC70-00404A	1	O	
15	IPR-BRKT DEVE HINGE R	JC70-00405A	1	O	
16	IPR-BRKT POWER	JC70-00414A	1	O	
17	PPR-SHEET/GUIDE PAPER	JC72-00836A	1	O	
18	PMO-FRAME BASE	JC72-01156A	1	O	
19	PMO-GUIDE SCT PAPER	JC72-01161A	1	O	
20	PMO-PAPER GUIDE	JC72-01172A	1	O	
21	PMO-BEARING SHAFT	JC72-41191A	1	O	
22	SOLENOID-PICK UP	JC33-00007B	1	O	
23	PBA SUB-TEMP	JC92-01535A	1	O	
24	WASHER-PLAIN	6031-001255	1	X	
25	CBF HARNESS-LIU GND	JB39-00103A	1	X	
26	WASHER-E.T	6031-000120	1	X	
S7	SCREW-TAPTITE	6003-000266	4	X	
S8	SCREW-TAPTITE	6003-000196	13	X	
S14	SCREW-TAPTITE	6003-001256	14	X	

9.17 MP Ass'y Exploded View



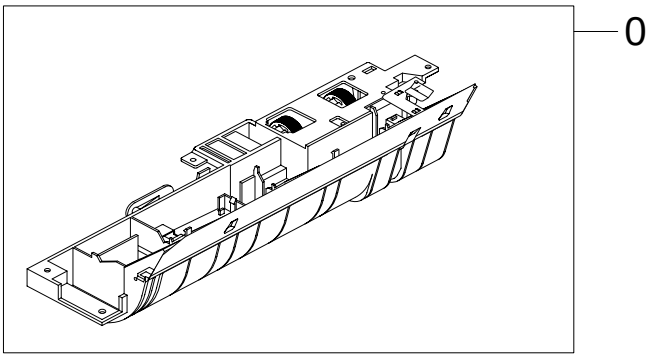


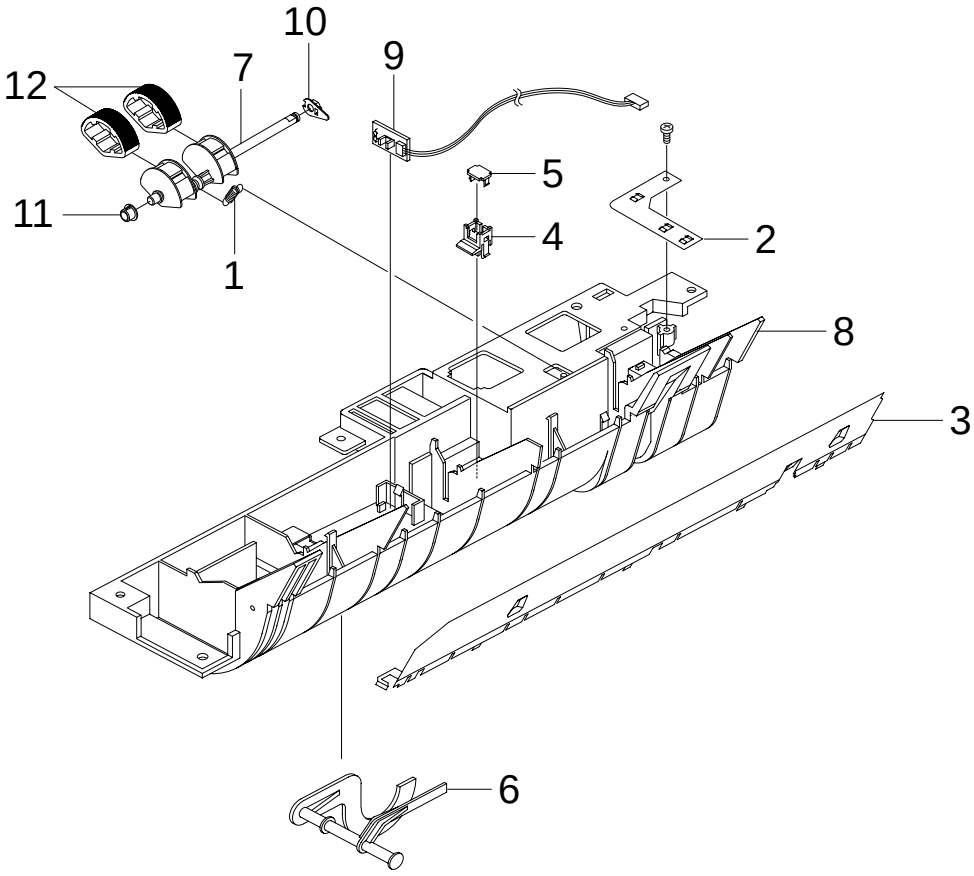
MP Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA UNIT-MP	JC96-02774A	1	O	
1	RING-E	6044-000125	2	X	
2	SOLENOID-MP	JC33-00006B	1	O	
3	SPRING ETC—CAM MP	JC61-00003A	1	O	
4	SPRING ETC-PICK UP MP	JC61-00041A	1	O	
5	SPRING ETC-KNOCKUP,MP	JC61-00483A	1	O	
6	IPR-BRACKET SOLENOIDE	JC70-00237A	1	O	
7	PMO-HOLDER CAM MPF	JC72-00055A	1	O	
8	PMO-ROLLER CAM.MP	JC72-00761A	1	O	
9	PMO-ACTUATOR,MP	JC72-00767A	1	O	
10	PMO-ADJUSTER,MP	JC72-00768A	1	O	
11	PMO-CAM PICK UP,MP	JC72-00769A	1	O	
12	PMO-FRAME,MP	JC72-00770A	1	O	
13	PMO-HOLDER PAD,MP	JC72-00771A	1	O	
14	PMO-HOLDER SENSOR,MP	JC72-00772A	1	O	
15	PMO-HOUSING PICK UP,MP	JC72-00773A	1	O	
16	PMO-PLATE KNOCK UP,MP	JC72-00775A	1	O	
17	PMO-IDLE PICK UP MP	JC72-41027A	2	O	
18	PMO-BUSHING_P/U,MP	JC72-41364A	2	O	
19	RPR-RUBBER PICK UP,MP	JC73-00089A	1	O	
20	PAD-MP(PLUS)	JC69-00494A	1	X	
21	RPR-PAD KNOCK UP MP	JC73-10906A	1	X	
22	PBA SUB-MP_EMPTY SENSOR	JC92-01500A	1	O	
23	PMO-GEAR P/U MPF	JC72-00056A	1	X	
24	SHEET-PAPER MP	JC63-00240A	1	X	
S5	SCREW-TAPTITE	6003-000119	2	X	
S9	SCREW-TAPTITE	6003-000266	1	X	

9.18 Pick-up Ass'y Exploded View



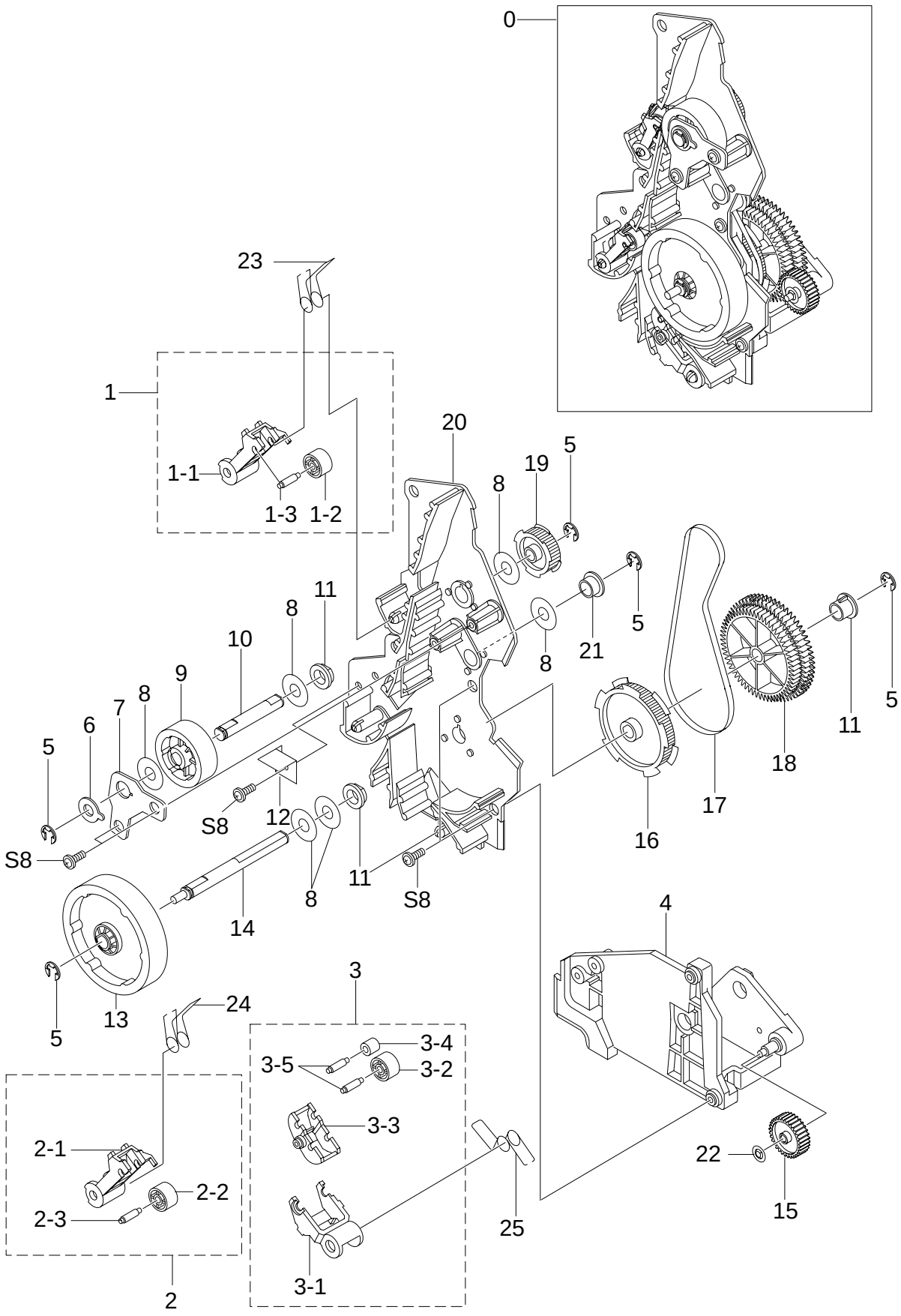


Pick-up Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA-PICKUP	JC97-01755A	1	O	
1	SPRING ETC-PICKUP	JC61-00482A	1	O	
2	IPR-GROUND FEED	JC70-00359A	1	X	
3	IPR-GUIDE INPUT	JC70-00360A	1	X	
4	PMO-CAP CONNECTOR L	JC72-00463A	1	O	
5	PMO-CAP CONNECTOR U	JC72-00465A	1	O	
6	PMO-ACTUATOR EMPTY	JC72-00719A	1	O	
7	PMO-SHAFT PICK UP	JC72-00729A	1	O	
8	PMO-GUIDE PAPER	JC72-01076A	1	O	
9	PBA SUB-P.EMPTY SENSOR	JC92-01453A	1	O	
10	PMO-BEARING SHAFT	JC72-41191A	1	O	
11	"PMO-BUSHING_P/U,MP"	JC72-41364A	1	O	
12	RUBBER-PICK UP	JC73-00149A	2	O	

9.19 Feeder Ass'y Exploded View

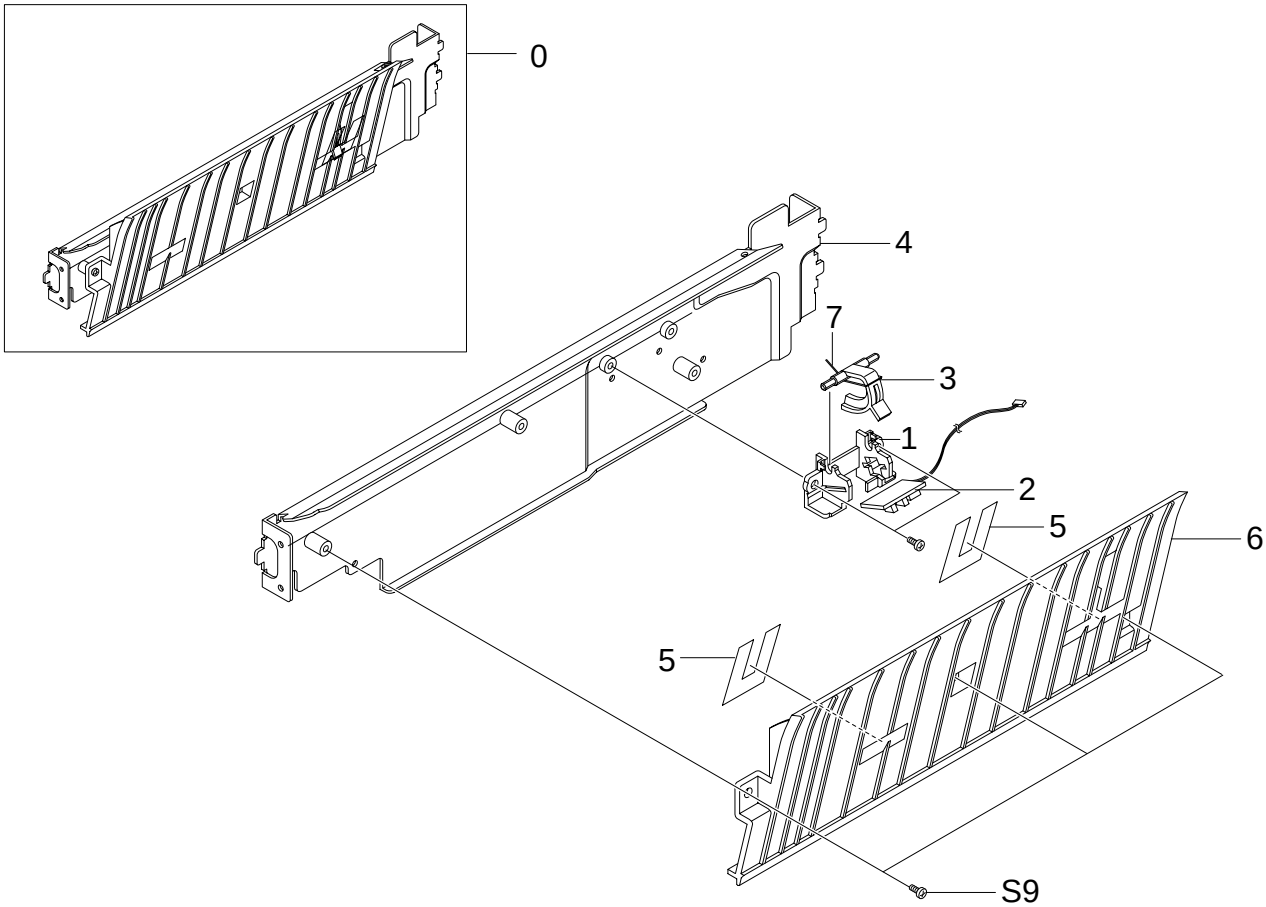


Feeder Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	MEA UNIT-FEED	JC97-01829A	1	O	
1	MEA-HOLDER PINCH C3	JC97-01768A	1	O	
1-1	PMO-HOLDER PINCH C3	JC72-01107A	1	X	
1-2	PMO-ROLLER FEED L	JC72-40261A	1	X	
1-3	IPR-SHAFT FEED IDLER	JC70-10230A	1	X	
2	MEA-HOLDER PINCH C5	JC97-01769A	1	O	
2-1	PMO-HOLDER PINCH C5	JC72-01108A	1	O	
2-2	PMO-ROLLER FEED L	JC72-40261A	1	X	
2-3	IPR-SHAFT FEED IDLER	JC70-10230A	1	X	
3	MEA-HOLDER PINCH M	JC97-01770A	1	O	
3-1	PMO-HOLDER PINCH M	JC61-00778A	1	O	
3-2	PMO-ROLLER FEED L	JC72-40261A	1	O	
3-3	PMO-SUB HOLDER FEED	JC72-40266A	1	O	
3-4	PMO-ROLLER FEED S	JC72-40262A	1	O	
3-5	IPR-SHAFT FEED IDLER	JC70-10230A	2	O	
4	PMO-FRAME FEED	JC72-01106A	1	O	
5	RING-E	6044-000125	4	X	
6	PMO-BUSHING FEED MID	JC72-01105A	1	O	
7	IPR-BRKT FEED MID	JC70-00376A	1	O	
8	WASHER-PLAIN	6031-000021	6	X	
9	PMO-ROLLER FEED MID	JC72-01113A	1	O	
10	SHAFT-FEED MID	JC66-00618A	1	O	
11	PMO-BUSHING P/U.MP	JC72-41364A	3	O	
12	GROUND-PICKUP PLATE	JC63-00182A	1	O	
13	PMO-ROLLER FEED	JC72-00727A	1	O	
14	SHAFT-FEED	JC66-00617A	1	O	
15	GEAR-MP/DUP DRV	JC66-00346A	1	O	
16	PMO-PULLEY FEED L	JC72-01110A	1	O	
17	BELT-TIMING GEAR	6602-001176	1	O	
18	GEAR-FEED	JC66-00332A	1	O	
19	PMO-PULLEY FEED S	JC72-01111A	1	O	
20	PMO-BRKT FEED	JC72-01134A	1	O	
21	PMO-PULLEY IDLE	JC72-01112A	1	O	
22	RING-CS	6044-000001	1	X	
23	SPRING-ETC FEED MID	6107-001210	1	X	
24	SPRING ETC FEED MID A	6107-001211	1	X	
25	SPRING ETC-FEED MP	JC61-00481A	1	X	
S8	SCREW-TAPTITE	6003-000196	5	X	

9.20 Guide Paper T2 Ass'y Exploded View

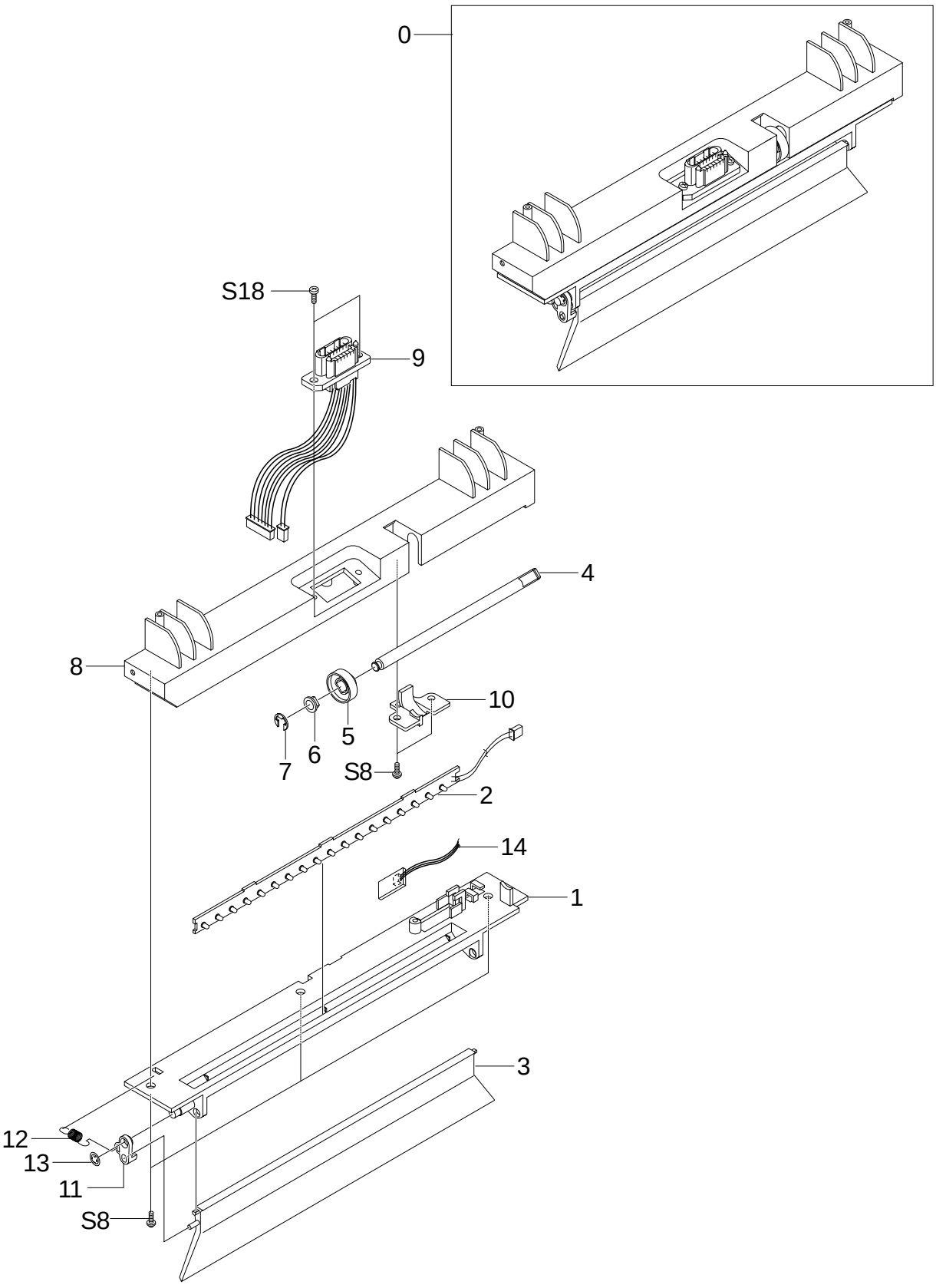


Guide Paper Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA UNIT-GUIDE PAPER T2	JC96-02797A	1	O	
1	PMO-COVER FEED SENSOR	JC72-01139A	1	O	
2	PBA SUB-FEED SENSOR	JC92-01455A	1	O	
3	PMO-ACTUATOR FEED SENSOR	JC72-01135A	1	O	
4	IPR-BRKT PAPER GUIDE	JC70-00389A	1	O	
5	SHEET-PAPER GUIDE	JC63-00235A	2	O	
6	PMO-GUIDE PAPER PATH	JC72-01160A	1	O	
7	SPRING ETC-ACTUATOR	JC61-00050A	1	X	
S9	SCREW-TAPTITE	6003-000266	5	X	

9.21 ITB Cam Ass'y Exploded View

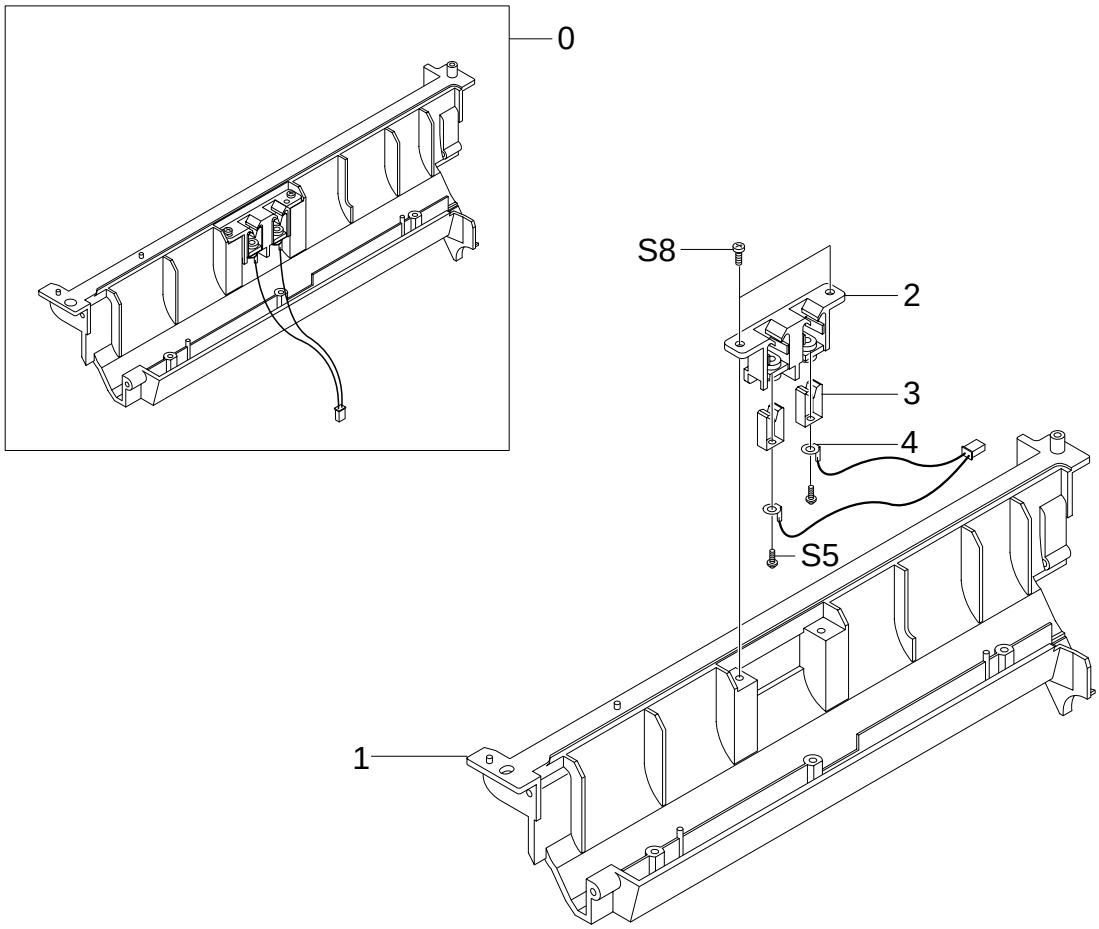


ITB Cam Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA UNIT-ITB CAM	JC96-02794A	1	X	
1	PMO-DUMMY ITB CAM LOWER	JC72-01154A	1	O	
2	PBA SUB-PTL	JC92-01451A	1	O	
3	PMO-PTL PATH	JC72-01187A	1	O	
4	SHAFT-ITB CLEAN CAM	JC66-00548A	1	O	
5	CAM-ITB CLEANING	JC66-00511A	1	O	
6	BUSH-D6/L4	JC61-00699A	1	O	
7	RING-E	6044-000125	1	X	
8	PMO-DUMMY ITB CAM UPPER	JC72-01155A	1	O	
9	ELA HOU-SET DRAWER	JC96-02888A	1	O	
10	PMO-COVER CAM SHAFT	JC72-01136A	1	O	
11	GUIDE-PTL SPRING	JC61-00717A	1	O	
12	SPRING-PTL	6107-001203	1	O	
13	RING-E S	6044-000001	1	X	
14	PBA SUB-TEMP_2	JC92-01538A	1	O	
S8	SCREW-TAPTITE	6003-000196	5	X	
S18	SCREW-SPECIAL	6009-001396	2	X	

9.22 Dummy Fuser Base Ass'y Exploded View

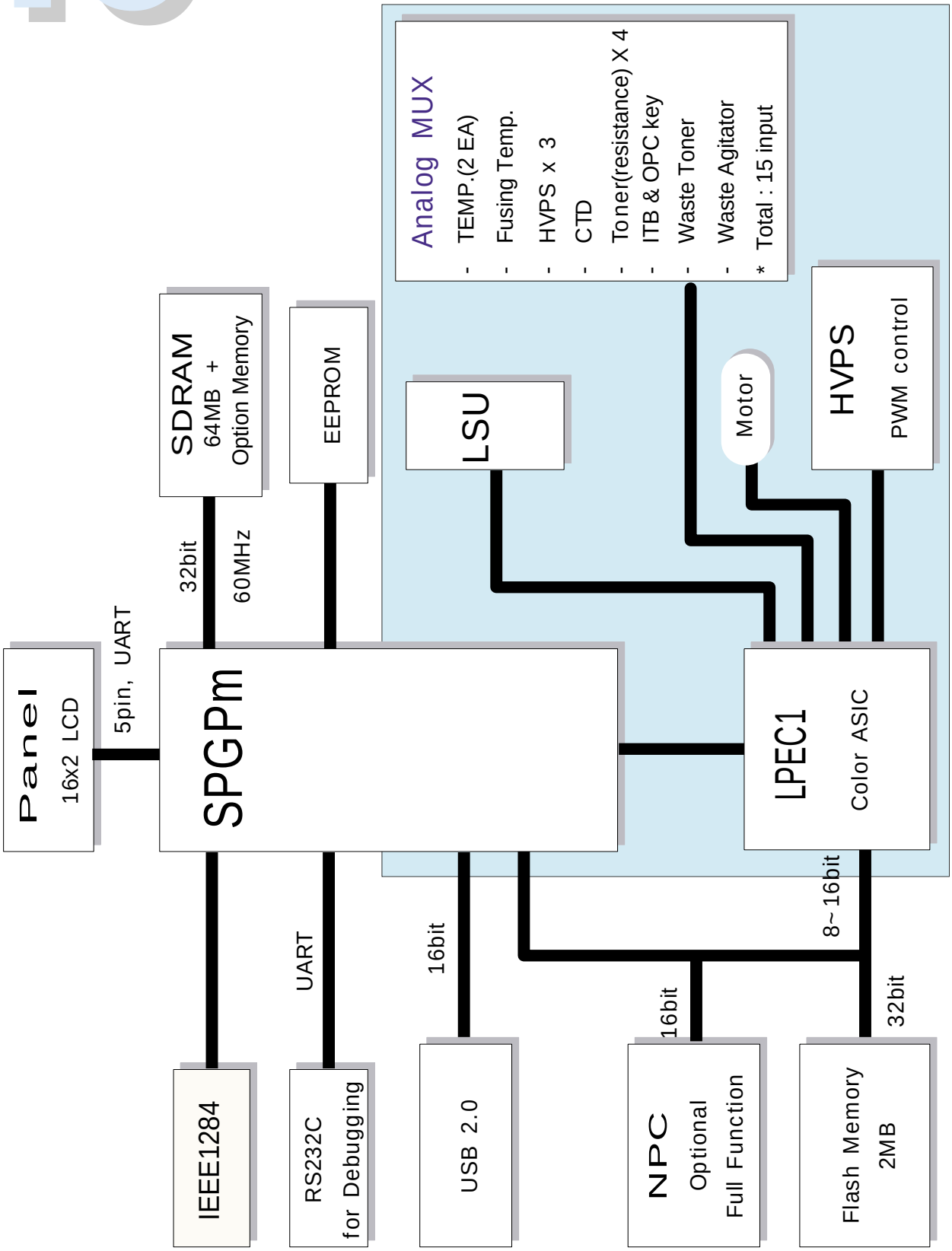


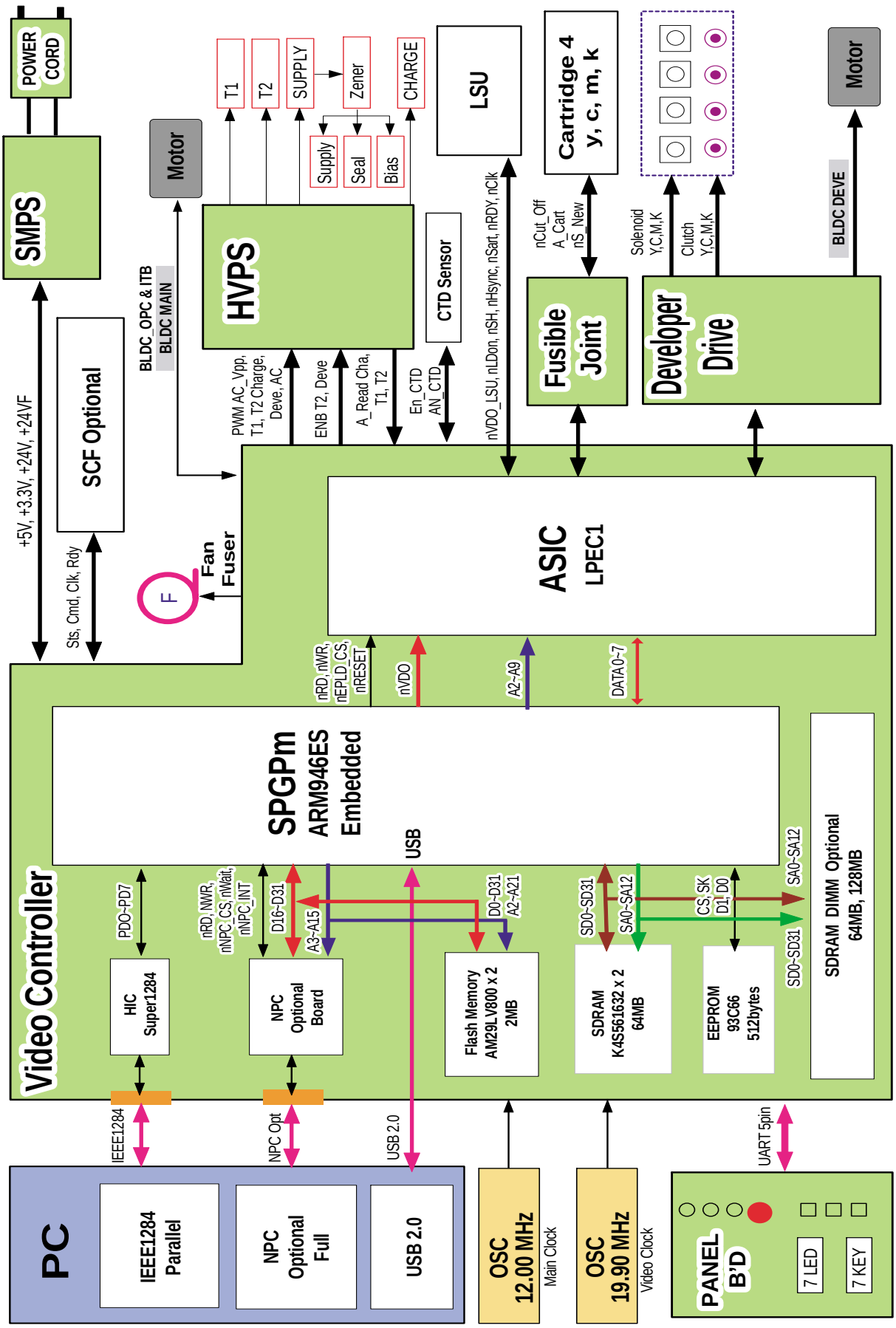
Dummy Fuser Base Ass'y Assembly Parts List

SA : Service Available
O : Service available **X** : Service not available

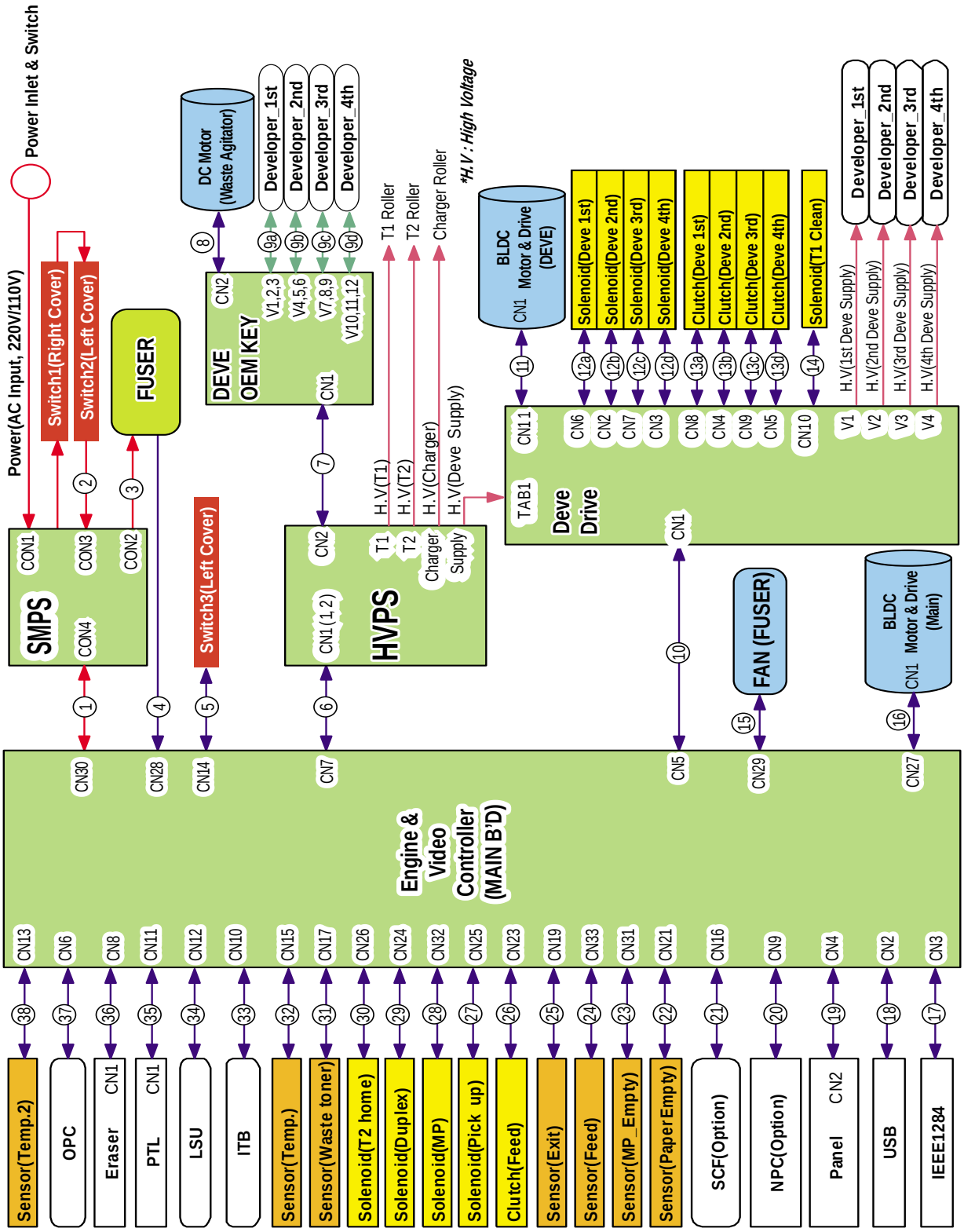
No.	Description	SEC.Code	Q'ty	SA	Remark
0	ELA UNIT-DUMMY FUSER BASE	JC96-02795A	1	X	
1	PMO-DUMMY FUSER BASE	JC72-01142A	1	O	
2	PMO-COVER FUSER AC	JC72-01140A	1	O	
3	IPR-TERMINAL FU	JC70-10961A	2	O	
4	CBF HARNESS-SMPS_AC WIRE	JC39-00288A	1	O	
S5	SCREW-TAPTITE	6003-000119	2	X	
S8	SCREW-TAPTITE	6003-000196	2	X	

10. Block Diagram




POWER CORD
SMPS
SCF Optional
+5V, +3.3V, +24V, +24VF
Sts, Cmd, Clk, Rdy
Motor
BLDC_OPC & ITB
BLDC MAIN
HVPS
T1
T2
SUPPLY
Zener
Supply
Seal
Bias
CHARGE
CTD Sensor
LSU
PWM AC_Vpp, T1, T2 Charge, Deve, AC
ENB T2, Deve
A_Read Cha, T1, T2
En_CTD
AN_CTD
nVDO_LSU, nLDon, nSH, nHsync, nSart, nRDY, nClk
Cartridge 4 y, c, m, k
nCut_Off
A_Cart
nS_New
Fusible Joint
Solenoid Y,C,M,K
Clutch Y,C,M,K
Developer Drive
Motor
BLDC DEVE
Fan
Fuser
ASIC
LPEC1
nRD, nWR, nEPLD_CS, nRESET
nVDO
A2~A9
DATA0~7
Video Controller
SPGPm
ARM946ES
Embedded
USB
PDO~PD7
nRD, NWR, nNPC_CS, nWait, nNPC_INT
D16~D31
A3~A15
D0~D31
A2~A21
SD0~SD31
SA0~SA12
CS, SK
DI, DO
SA0~SA12
SD0~SD31
SDRAM DIMM Optional
64MB, 128MB
HIC
Super1284
NPC
Optional
Board
Flash Memory
AM29LV800 x 2
2MB
SDRAM
K4S561632 x 2
64MB
EEPROM
93C66
512bytes
IEEE1284
NPC Opt
USB 2.0
UART 5pin
PC
IEEE1284
Parallel
NPC
Optional
Full
USB 2.0
OSC
12.00 MHz
Main Clock
OSC
19.90 MHz
Video Clock
PANEL
B'D
7 LED
7 KEY

11. Connection Diagram



1 Main BD(CN30) ↔ SMPS(CON4)

Pin	Signal Name	Dir	Pin	Signal Name
1	+24VF	←	2	+24VF
2	+24VF	←	1	+24VF
3	+24VF	←	4	+24VF
4	+24VF	←	3	+24VF
5	AGND		6	GND
6	AGND		5	GND
7	AGND		8	GND
8	AGND		7	GND
9	+24V	←	10	+24V
10	+24V	←	9	+24V
11	AGND		12	GND
12	AGND		11	GND
13	+3.3V	←	14	+3.3V
14	+3.3V	←	13	+3.3V
15	+3.3V	←	16	+3.3V
16	+3.3V	←	15	+3.3V
17	DGND		18	GND
18	DGND		17	GND
19	DGND		20	GND
20	DGND		19	GND
21	+5V	←	22	+5V
22	+5V	←	21	+5V
23	DGND		24	GND
24	DGND		23	GND
25	nFUSERON	→	26	<-
26	NC		25	NC

2 SMPS(CON3) ↔ Switch

Pin	Signal Name	Dir	Pin	Signal Name
1	+24V	→		<-
2	NC			<-
3	+24VF	←		<-

3 SMPS(CON2) ↔ Fuser Unit

Pin	Signal Name	Dir	Pin	Signal Name
1	CON2	→		<-
2	NC			<-
3	5096-02C	→		<-

4 Main BD(CN28) ↔ Fuser Unit

Pin	Signal Name	Dir	Pin	Signal Name
1	AN_FUSER1_OUT	←		<-
2	AN_FUSER1_OUT2	←		<-

5 Main BD(CN14) ↔ Switch(Left cover)

Pin	Signal Name	Dir	Pin	Signal Name
1	+5V	→		<-
2	+5VL	←		<-

6 Main BD(CN7) ↔ HVPS(CN1-1)

Pin	Signal Name	Dir	Pin	Signal Name
2	+24VF	→	1	24V
4	AGND		3	GND
6	PWM_AC_VPP	→	5	AC_Vpp_PWM
8	PWM_T2	→	7	T2_PWM
10	PWM_CHARGE	→	9	CHARGE_PWM
12	ENB_DEVE_AC	→	11	DEV_REM_PWM
14	A_READ_T1	←	13	T1_READ
16	nWST_AGT	→	15	nWST_AGT
18	A_CART_2ND	←	17	A_CART_2ND
20	A_CART_4TH	←	19	A_CART_4TH
22	nS_NEW_2ND	←	21	nS_New_2ND
24	nS_NEW_4TH	←	23	nS_New_4TH
26	A_WST_AGT	←	25	A_WST_AGT
28	DGND		27	NC

>> Main BD(CN7) ↔ HVPS(CN1-2)

1	+24VF	→	2	24V
3	AGND		4	GND
5	ENB_T2	→	6	T2_EN
7	PWM_AC	→	8	AC_PWM
9	PWM_T1	→	10	T1_PWM
11	PWM_DEVE	→	12	DEVE_PWM
13	A_READ_CHA	←	14	CHARGE_READ
15	A_READ_T2	←	16	T2_READ
17	nCUT_OFF	→	18	nCUT_off
19	A_CART_1ST	←	20	A_CART_1ST
21	A_CART_3RD	←	22	A_CART_3RD
23	nS_NEW_1ST	←	24	nS_New_1ST
25	nS_NEW_3RD	←	26	nS_New_3RD
27	+5V		28	NC

7 HVPS(CN2) ↔ Deve OEM Key(CN1)

Pin	Signal Name	Dir	Pin	Signal Name
1	24V	→	2	24V
2	AGND		1	AGND
3	nCUT_off	→	4	nCUT_OFF
4	nWST_AGT	→	3	nWST_AGT
5	A_CART_1ST	←	6	A_CART_1ST
6	A_CART_2ND	←	5	A_CART_2ND
7	A_CART_3RD	←	8	A_CART_3RD
8	A_CART_4TH	←	7	A_CART_4TH
9	nS_New_1ST	←	10	nS_NEW_1ST
10	nS_New_2ND	←	9	nS_NEW_2ND
11	nS_New_3RD	←	12	nS_NEW_3RD
12	nS_New_4TH	←	11	nS_NEW_4TH
13	A_WST_AGT	←	14	SENSE_AGT
14	NC		13	NC

8 Deve OEM Key(CN2) ↔ DC Motor(Waste Agitator)

Pin	Signal Name	Dir	Pin	Signal Name
1	nWST_AGT	→		<-
2	NC			<-
3	SENSE_AGT	←		<-

9a Deve OEM Key ↔ Deve Cartridge(1st)

Pin	Signal Name	Dir	Pin	Signal Name
V1	NEW_CART_1ST	↔		<-
V2	A_CART_1ST	←		<-
V3	AGND			<-

9b Deve OEM Key ↔ Deve Cartridge(2nd)

Pin	Signal Name	Dir	Pin	Signal Name
V4	NEW_CART_2ND	↔		<-
V5	A_CART_2ND	←		<-
V6	AGND			<-

9c Deve OEM Key ↔ Deve Cartridge(3rd)

Pin	Signal Name	Dir	Pin	Signal Name
V7	NEW_CART_3RD	↔		<-
V8	A_CART_3RD	←		<-
V9	AGND			<-

9d Deve OEM Key ↔ Deve Cartridge(4th)

Pin	Signal Name	Dir	Pin	Signal Name
V10	NEW_CART_4TH	↔		<-
V11	A_CART_4TH	←		<-
V12	AGND			<-

10 Main BD(CN5) ↔ Deve Drive(CN1)

Pin	Signal Name	Dir	Pin	Signal Name
1	AGND		2	AGND
2	+24VF	→	1	24V
3	AGND		4	AGND
4	+24VF	→	3	24V
5	AGND		6	AGND
6	+24VF	→	5	24V
7	DGND		8	DGND
8	+5V	→	7	5V
9	nSOL_DEVE_1ST	→	10	nSOL_DEVE_1ST
10	nSOL_DEVE_2ND	→	9	nSOL_DEVE_2ND
11	nSOL_DEVE_3RD	→	12	nSOL_DEVE_3RD
12	nSOL_DEVE_4TH	→	11	nSOL_DEVE_4TH
13	nCLT_DEVE_1ST	→	14	nCLT_DEVE_1ST
14	nCLT_DEVE_2ND	→	13	nCLT_DEVE_2ND
15	nCLT_DEVE_3RD	→	16	nCLT_DEVE_3RD
16	nCLT_DEVE_4TH	→	15	nCLT_DEVE_4TH
17	nBLDC_START2	→	18	START
18	nBLDC_RDY2	←	17	READY
19	BLDC_CLK2	→	20	CLOCK
20	nSOL_ITB_CLN	→	19	nSOL_T1_CLN

11 Deve Drive ↔ BLDC Motor(Deve)

Pin	Signal Name	Dir	Pin	Signal Name
1	24V	→	1	+24V
2	24V	→	2	+24V
3	AGND		3	PGND
4	AGND		4	PGND
5	DGND		5	SGND
6	5V	→	6	+5V
7	START	→	7	START
8	READY	←	8	READY
9	CLOCK	→	9	CLOCK
			10	CW/CCW

12a Deve Drive(CN6) ↔ Solenoid(Deve 1st)

Pin	Signal Name	Dir	Pin	Signal Name
1	nSOL_DEV_1ST			<-
2	NC			<-
3	AGND			<-

12b Deve Drive(CN2) ↔ Solenoid(Deve 2nd)

Pin	Signal Name	Dir	Pin	Signal Name
1	nSOL_DEV_2ND			<-
2	NC			<-
3	AGND			<-

12c Deve Drive(CN7) ↔ Solenoid(Deve 3rd)

Pin	Signal Name	Dir	Pin	Signal Name
1	nSOL_DEV_3RD			<-
2	NC			<-
3	AGND			<-

12d Deve Drive(CN3) ↔ Solenoid(Deve 4th)

Pin	Signal Name	Dir	Pin	Signal Name
1	nSOL_DEV_4TH			<-
2	NC			<-
3	AGND			<-

13a Deve Drive(CN8) ↔ Clutch(Deve 1st)

Pin	Signal Name	Dir	Pin	Signal Name
1	nCLT_DEV_1ST			<-
2	NC			<-
3	AGND			<-

13b Deve Drive(CN4) ↔ Clutch(Deve 2nd)

Pin	Signal Name	Dir	Pin	Signal Name
1	nCLT_DEV_2ND			<-
2	NC			<-
3	AGND			<-

13c Deve Drive(CN9) ↔ Clutch(Deve 3rd)

Pin	Signal Name	Dir	Pin	Signal Name
1	nCLT_DEV_3RD			<-
2	NC			<-
3	AGND			<-

13d Deve Drive(CN5) ↔ Clutch(Deve 4th)

Pin	Signal Name	Dir	Pin	Signal Name
1	nCLT_DEV_4TH			<-
2	NC			<-
3	AGND			<-

14 Deve Drive(CN10) ↔ Solenoid(T1 clean)

Pin	Signal Name	Dir	Pin	Signal Name
1	nSOL_T1_CLN			<-
2	NC			<-
3	AGND			<-

15 Main BD(CN29) ↔ Fan Motor(Fuser)

Pin	Signal Name	Dir	Pin	Signal Name
1	nFAN_FUSER			<-
2	NC			<-
3	+24VF			<-

16 Main BD(CN27) ↔ BLDC Motor(Main)

Pin	Signal Name	Dir	Pin	Signal Name
1	+24VF		1	+24V
2	+24VF		2	+24V
3	AGND		3	PGND
4	AGND		4	PGND
5	DGND		5	SGND
6	+5V		6	+5V
7	nBLDC_START1		7	START
8	nBLDC_RDY1		8	READY
9	BLDC_CLK1		9	CLOCK
10	DGND		10	CW/CCW

17 Main BD(CN3) ↔ IEEE1284 Port

Pin	Signal Name	Dir	Pin	Signal Name
1	nSTB	←		<-
2	DATA0	↔		<-
3	DATA1	↔		<-
4	DATA2	↔		<-
5	DATA3	↔		<-
6	DATA4	↔		<-
7	DATA5	↔		<-
8	DATA6	↔		<-
9	DATA7	↔		<-
10	nACK	→		<-
11	BUSY	→		<-
12	PERROR	→		<-
13	SELECT	→		<-
14	nAUTOFD	←		<-
15	NC			<-
16	DGND			<-
17	AGND			<-
18	5V1			<-
19	DGND			<-
20	DGND			<-
21	DGND			<-
22	DGND			<-
23	DGND			<-
24	DGND			<-
25	DGND			<-
26	DGND			<-
27	DGND			<-
28	DGND			<-
29	DGND			<-
30	DGND			<-
31	nINIT	←		<-
32	nFAULT	→		<-
33	NC			<-
34	NC			<-
35	NC			<-
36	nSELECTIN	←		<-

18 Main BD(CN2) ↔ USB Port

Pin	Signal Name	Dir	Pin	Signal Name
1	VBUS_2270	←		VBUS
2	DN	↔		D-
3	DP	↔		D+
4	DGND			AGND
5	AGND			FGND
6	AGND			FGND

19 Main BD(CN4) ↔ Panel(CN2)

Pin	Signal Name	Dir	Pin	Signal Name
1	DGND		1	DGND
2	+5V	→	2	VCC
3	PANEL_TX	→	3	OPE_RXD
4	nRST_PANEL	→	4	/OPE_RST
5	PANEL_RX	←	5	OPE_TXD

20 Main BD(CN9) ↔ NPC(J1)

(Network Print Card)

Pin	Signal Name	Dir	Pin	Signal Name
1	+3.3V	→	1	VDD3
2	+3.3V	→	2	VDD3
3	DGND		3	GND
4	nNPC_CS	→	4	nXPCS
5	DATA(31)	↔	5	XPData(31)
6	DATA(30)	↔	6	XPData(30)
7	DATA(29)	↔	7	XPData(29)
8	DGND		8	GND
9	DATA(28)	↔	9	XPData(28)
10	DATA(27)	↔	10	XPData(27)
11	DATA(26)	↔	11	XPData(26)
12	DGND		12	GND
13	DATA(25)	↔	13	XPData(25)
14	DATA(24)	↔	14	XPData(24)
15	nNPC_INT	←	15	nXIRQ_OUT
16	DGND		16	GND
17	A_ADDR(5)	→	17	XPAddr(3)
18	A_ADDR(4)	→	18	XPAddr(2)
19	A_ADDR(3)	→	19	XPAddr(1)
20	+3.3V	→	20	VDD3
21	NC		21	NC
22	DATA(23)	↔	22	XPData(23)
23	DATA(22)	↔	23	XPData(22)
24	NC		24	NC
25	DATA(21)	↔	25	XPData(21)
26	NC		26	NC
27	DATA(20)	↔	27	XPData(20)
28	A_ADDR(15)	→	28	XPAddr(13)
29	DATA(19)	↔	29	XPData(19)
30	A_ADDR(14)	→	30	XPAddr(12)
31	DATA(18)	↔	31	XPData(18)
32	A_ADDR(13)	→	32	XPAddr(11)
33	DATA(17)	↔	33	XPData(17)
34	A_ADDR(12)	→	34	XPAddr(10)
35	DATA(16)	↔	35	XPData(16)
36	A_ADDR(11)	→	36	XPAddr(9)
37	A_ADDR(6)	→	37	XPAddr(4)
38	A_ADDR(10)	→	38	XPAddr(8)
39	nNPC_RST	→	39	nRESET_P
40	A_ADDR(9)	→	40	XPAddr(7)
41	nWAIT	←	41	nXPWAIT
42	A_ADDR(8)	→	42	XPAddr(6)
43	NC		43	NC
44	A_ADDR(7)	→	44	XPAddr(5)
45	NC		45	NC
46	NC		46	NC
47	NC		47	NC
48	DGND		48	GND
49	NC		49	NC
50	nRD	→	50	nXPRE
51	nWR	→	51	nXPWE
52	DGND		52	GND
53	NC		53	NC
54	NC		54	NC
55	NC		55	NC
56	DGND		56	GND
57	nPRT_IRQ	→	57	nXIRQ_IN
58	DGND		58	GND
59	DGND		59	GND
60	DGND		60	GND

21 Main BD(CN16) ↔ SCF Unit(CN9)

(Secondary Cassette Feeder)

Pin	Signal Name	Dir	Pin	Signal Name
1	+3.3V	→	1	3.3V
2	STS_SCF	←	2	SCF_STS
3	CMD_SCF	→	3	SCF_CMD
4	CLK_SCF	→	4	SCF_CLK
5	RDY_SCF	←	5	SCF_RDY
6	+24V	→	6	24VS
7	DGND		7	DGND
8	AGND		8	AGND

22 Main BD(CN21) ↔ Sensor(Paper Empty)

Pin	Signal Name	Dir	Pin	Signal Name
1	+3.3V	→	1	<-
2	nS_EMPT	←	2	<-
3	DGND		3	<-
4	NC		4	<-

23 Main BD(CN31) ↔ Sensor(MP Empty)

Pin	Signal Name	Dir	Pin	Signal Name
1	+3.3V	→	1	<-
2	nS_MP_EMPT	←	2	<-
3	DGND		3	<-
4	NC		4	<-

24 Main BD(CN33)↔Sensor(Feed)

Pin	Signal Name	Dir	Pin	Signal Name
1	+3.3V	→	1	<-
2	nS_FEED	←	2	<-
3	DGND		3	<-

25 Main BD(CN19)↔Sensor(Exit)

Pin	Signal Name	Dir	Pin	Signal Name
1	+3.3V	→	1	<-
2	nS_EXIT	←	2	<-
3	DGND		3	<-
4	NC		4	<-

26 Main BD(CN23)↔Clutch(Feed)

Pin	Signal Name	Dir	Pin	Signal Name
1	+24VF	→		<-
2	nCLT_FEED	→		<-

27 Main BD(CN25)↔Solenoid(Pick up)

Pin	Signal Name	Dir	Pin	Signal Name
1	+24VF	→		<-
2	nSOL_PICKUP	→		<-

28 Main BD(CN32)↔Solenoid(MP)

Pin	Signal Name	Dir	Pin	Signal Name
1	+24VF	→		<-
2	nSOL_MP	→		<-
3	NC			<-

29 Main BD(CN24)↔Solenoid(Duplex)

Pin	Signal Name	Dir	Pin	Signal Name
1	+24VF	→		<-
2	nSOL_DUP	→		<-

30 Main BD(CN26)↔Solenoid(T2 home)

Pin	Signal Name	Dir	Pin	Signal Name
1	+3.3V	→	1	<-
2	NC		2	<-
3	nSOL_T2	→	3	<-

31 Main BD(CN17)↔Sensor(Waste Toner)

>> CN1(TX)				
Pin	Signal Name	Dir	Pin	Signal Name
1	+3.3V	→	1	<-
2	DGND		2	<-
>> CN1(RX)				
3	nS_TONER_RX	←	1	<-
4	DGND		2	<-
5	NC			

32 Main BD(CN15) ↔ Sensor(Temperature)

Pin	Signal Name	Dir	Pin	Signal Name
1	A_TEMP	←	1	<-
2	GNDA		2	<-

33 Main BD(CN10) ↔ ITB Unit (Drawer Connector on Frame)

Pin	Signal Name	Dir	Pin	Signal Name
1	+5VL	→	J7	<-
2	nS_ITB_HOME	←	J6	<-
3	DGND		J5	<-
4	A_ITB_HOME	←	J4	<-
5	DGND		J3	<-
6	nLED_ON	→	J14	<-
7	V_MON	←	J13	<-
8	GNDA		J12	<-
9	+5VL	→	J11	<-
10	AN_CTD	←	J10	<-
11	DGND		J9	<-
12	nITB_CONFIRM	←	J8	<-
			J1	NC
			J2	NC

34 Main BD(CN12) ⟷ LSU

Pin	Signal Name	Dir	Pin	Signal Name
>> LD Part				
1	nHSYNC	→	1	*HSYNC
2	+5VL	→	2	+5V
3	DGND		3	GND
4	nLDON_LSU	→	4	*LD ON
5	VDO_LSU+	→	5	*VIDEO+
6	VDO_LSU-	→	6	*VIDEO-
7	nSH_LSU	→	7	*S/H
>> Motor Part				
8	CLK_LSU	→	1	CLK
9	nRDY_LSU	←	2	*READY
10	nSTART_LSU	→	3	*START
11	AGND		4	GND
12	+24V	→	5	VCC

35 Main BD(CN11) ⟷ PTL(CN1)

Pin	Signal Name	Dir	Pin	Signal Name
1	+5V	→	1	<-
2	EN_ERASER	→	2	<-

36 Main BD(CN8) ⟷ ERASER(CN1)

Pin	Signal Name	Dir	Pin	Signal Name
1	+5VL	→	1	<-
2	EN_ERASER	→	2	<-

* (+5V → Resistance(150 Ohm) → CN11-1)

37 Main BD(CN6) ⟷ OPC Unit

Pin	Signal Name	Dir	Pin	Signal Name
1	A_OPC_KEY	←		<-
2	DGND	→		<-

38 Main BD(CN13) ↔ Sensor(Temperature)

Pin	Signal Name	Dir	Pin	Signal Name
1	A_TEMP2	←	1	<-
2	NC		2	<-
3	GNDA		3	<-